

# PROCEEDINGS OF THE MERCHANT MARINE COUNCIL

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# Proceedings of the MERCHANT MARINE COUNCIL

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U. S. C. G.

Commandant of the Coast Guard

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## Activities of the Council

THE Merchant Marine Council considered the final report of the Committee on Design and Testing of Life Preservers, Air-Sea Rescue Agency, and approved the three new type life preservers developed by this committee in its research. These new designs are designated as Coast Guard Models 1, 2, and 3 (C. G. Dwg. No. F-49-8-1, Sheets 1 and 2, and specification dated 10 June, 1944).

The Council Committee on Suitability of Lifeboat Compasses submitted its final report. This committee was originally appointed by the Chairman when a report upon statements of survivors showed that in several instances the presently required two-inch liquid compass had proven to be practically useless. The committee, assisted by Captain L. V. Kielhorn, USCG, Lieutenant H. L. Kleinoder, USCGR, and representatives of the U. S. Naval Observatory, Bureau of Ships, U. S. Navy, and the Maritime Commission, conducted separate tests at Washington, D. C., and New York. Test results substantiated the reports of survivors. The committee found that the present two-inch compass when used in a metal lifeboat became magnetically locked or what is commonly termed "frozen up" due to the large amounts of semicircular deviation (error) present. The present compass affords no means of compensating or correcting for this error. Additionally, no means are provided for mounting the compass in a lifeboat. Tests were made to determine the best location

from the viewpoint of accuracy of the compass and steering of the lifeboat. It was found that the compass should be installed in a central position in the stern sheets, preferably above the thwart line.

Captain J. A. Hirshfield, USCG, and Commander R. A. Smyth, USCGR, submitted a majority report recommending that, if minimum standards for safety of life at sea required lifeboats to be equipped with a compass, the presently known operating conditions require a compass with certain properties not in the present compass. The card should not be less than four inches in diameter and should be luminously marked for each five-degree interval. The compass should be fitted with compensating equipment to correct only for semicircular deviation. The fixed correcting magnets should be installed in a simply controlled mechanical arrangement which will allow variable effects for each of the B and C correctors from zero to fifty degrees, together with readily intelligible instructions for compensating the compass at sea. Each compass should be fitted with a device permitting the compass to be installed in the lifeboat in such a manner that it may be removed easily and stowed in a safe place. A compass specification embodying these features was submitted.

Captain R. T. Merrill, USCGR, submitted a minority report. It was pointed out that an improved and changing rescue technique has reduced the number of lifeboats which

must make their way to shore in place of awaiting rescue. Of the comparatively small number which must proceed to shore, in a substantial number of cases their objective will be a land mass which subtends such an angle at the boat that precise navigation is unnecessary. Precise navigation cannot be secured by a compass which constantly shows a true course by reason of surface current, drift, leeway, and personal error in steering. Moreover, a qualified deck officer should be able to approximate the heading of the boat by the stars and even approximate the latitude if Polaris is visible. It was recommended that inasmuch as an accurately compensated compass does not give course made good and approximate error can be estimated from observations of heavenly bodies, the only practical

requirements for a compass are a luminous card and maintenance of the same error under similar conditions.

The Council after consideration of the test reports and recommendations approved the majority report. The specifications were referred back to the committee for final revision. The final specifications and necessary amendments to the regulations will be submitted to the Council in the near future.

The Council also approved publication of revised editions of the General Rules and Regulations for the Great Lakes, and for Bays, Sounds, and Lakes Other Than the Great Lakes, Subchapters H and I respectively. The April 1944, edition of Wartime Safety Measures for the Merchant Marine previously approved by the

Council has been published and is now available for distribution.

The Council committee for testing of the M. S. Chapin experimental design lifeboat submitted its final report. Tests of the Chapin designed boat and a 24-foot Coast Guard standard design lifeboat were conducted in varying kinds of weather at the U. S. Coast Guard Academy, New London, Connecticut, under the Direction of Rear Admiral James Pine, USCG. It was the sense of the Council that changing technique in air-sea rescue operations warranted exploration and development of the possibilities of the Chapin design. Arrangements were made with Mr. Chapin for delivery of this experimental model to the U. S. Coast Guard Yard, Curtis Bay, Maryland, for development of the design by the Coast Guard.

A new type lifeboat davit was submitted for approval for use with lifeboats exceeding 5,000 pounds total weight under Section 59.3 (h), General Rules and Regulations, Ocean and Coastwise Vessels. The davit is operated by a compression spring which imparts the initial movement to the davit. As the davit swings farther out it is activated by gravity until it reaches the full outboard position. The davit is controlled by the brake of the lifeboat winch during the swinging out period. The Council determined that this davit did not comply with the regulations inasmuch as operation of the davit requires power to be supplied from the compression spring.

Upon April 5, 1943, the Council established minimum standards, for the improved type life raft, which were set forth in Navigation and Vessel Inspection Circular No. 33, 15 April, 1943, subsequently superseded by Navigation and Vessel Inspection Circular No. 42, 30 September, 1943. It was determined that due to material shortages and production difficulties approval of the old type rafts would not then be withdrawn, but that when the improved types of life rafts were in production in quantity, all approvals of the old type rafts would be withdrawn, and the improved type life raft would be installed on all new construction and wherever replacements were required on vessels in the ocean and coastwise service. The Council was advised on June 8, 1944, that the improved type life raft was in



Transferring injured seaman to Coast Guard cutter for treatment

quantity production. Accordingly, on June 10, 1944, approvals of old type rafts for ocean and coastwise service, that is, approvals of all types of life rafts for ocean and coastwise service issued or made effective prior to March 15, 1943, were withdrawn. After June 10, 1944, all new installations and replacements of life rafts on ocean and coastwise vessels are required to be of an improved type approved by the Coast Guard after March 15, 1944. This withdrawal of approval does not affect any approved life rafts of the old type installed and in service on or prior to June 10, 1944, so long as they are suitable and in good condition.

The Council approved the issuance of Navigation and Vessel Inspection Circular No. 48 containing recommendations for repairing lifeboats and life rafts after encounter with hostile aircraft, submarines, or surface vessels. This supersedes and rescinds former Bureau of Marine Inspection and Navigation Bureau Memorandum No. 430. This circular letter sets forth certain supplementary materials which it is recommended be provided for making temporary repairs on lifeboats.

The Load Line Regulations have been amended by the addition of a new section, 48.5a, to Part 48, Foreign Voyages During the National Emergency, to clarify the duty of a vessel marked with Great Lakes markings aft of the diamond and emergency coastwise or special service markings forward of the diamond to paint out these markings before the vessel enters the foreign trade, if the vessel is also furnished with a certificate on the international form.

The Council also approved amendments to Subchapters D, G, H, I, and J, providing that where fire pumps operating under shut-off conditions cannot develop a pressure in excess of 125 pounds p. s. i., the pump discharge need not be fitted with a relief valve. It was the sense of the Council that, inasmuch as no practical safety purpose was achieved by requiring the valve in this instance, the regulations should be amended.

Section 146.24-100 of the explosives or dangerous cargo regulations was amended to make clear that tanks (ICC-106A500) could be transported.

The Council refused a request that the shipboard inspection test for life preservers required by the regulations

be reduced from 16½ pounds net weight to 14½ pounds net weight in the case of approximately 10,000 to 15,000 quilted type kapok life preservers which had been in use from six to twelve months. In view of existing conditions it was felt that it would be a better procedure to reclaim the usable kapok from the jackets in question for utilization in the manufacture of new life preservers which will meet the required tests and provide satisfactory buoyancy for emergency use.

The material specifications for davits were revised to bring these requirements into conformity with the A. S. T. M. specifications. The purpose of this revision was to facilitate the purchasing of materials. No reduction in safety is involved.

The Council examined a bubble circle sextant submitted by Captain J. F. Hellweg, U. S. N. (Ret.), Superintendent, U. S. Naval Observatory, for lifeboat navigation purposes. It was found that this instrument was the best of its type which had been submitted to the Council. However, it was felt that under existing merchant vessel conditions the regulations should not be amended to require its use on lifeboats and life rafts.

The appeal procedure of the temporary wartime rules governing investigation of accidents and casualties on merchant vessels has been amended in an important respect. Whereas the old regulations permitted only an appeal to the District Coast Guard Officer, the amendment which has been promulgated now permits an appeal from the decision of the District Coast Guard Officer to the Commandant of the Coast Guard under certain circumstances. The new procedure is set forth in full in the Appendix.

Marine Inspection Memorandum No. 74, dated 15 June 1944, has changed in many important respects the procedure for handling violations of navigation laws and regulations and the collection of penalties. Among the important changes made is that in cases where the penalty, as mitigated, exceeds \$50, the offender has a right of appeal to the Commandant. The old regulations did not permit a person cited for a violation to make application for relief without first filing a deposit. The new procedure permits application to be made without making a deposit.

In the interest of uniform administration, the Council approved Marine Inspection Memorandum No. 73, which provides that the evaluation of the qualifying experience of college engineers, stationary engineers, and machinist trade apprentices who are candidates for original engineer's license shall be made by Headquarters. Any applicant for an original engineer's license may make his inquiry through the Officer-in-Charge, Marine Inspection, the U. S. Maritime Service, or direct to the Commandant, U. S. Coast Guard. Headquarters, upon evaluation of the service in question, will determine the sea service additionally needed and will return the evaluated form to the applicant himself if he made the inquiry directly to the Commandant. If inquiry was made through an Officer-in-Charge, Marine Inspection, or the Maritime Service, the evaluated form will be returned to that office, in which case the original of the evaluated form should be given to the applicant seeking a license, and a copy retained. This will enable the applicant after he has satisfactorily completed the required service to present the original evaluated form and documentary evidence of service required therein to any Officer-in-Charge, Marine Inspection, for permission to take the required examination.

The Council also approved Coast Guard specifications for the luminous marking on merchant vessels required by Section 153.19a, Emergency Regulations.

At the request of a lifeboat and life raft manufacturer, the Council determined that a sprayed aluminum coating may be used in lieu of galvanizing or parkerizing required by Navigation and Vessel Inspection Circular No. 42. Tests of this material revealed that it is a substitute which is the equivalent of galvanizing. However, where a sprayed aluminum coating is used, both the inside and outside surfaces must be sprayed, as is presently required in the case of galvanizing and parkerizing.

Several persons appeared before the Council. Among these were Mr. Henry Garnjobst and Mr. C. D. Bird, who presented to the Council the possibilities of making the wood for life rafts fire retardant by chemical pressure treatment. The Chairman designated certain members to obtain the necessary data on this process, and to

arrange for tests to destruction of rafts so constructed if it was deemed that the facts warranted such action.

Various panel members of the Council have requested from time to time that the cost of compliance with certain Coast Guard Emergency Regulations be borne by the government. The financial agreements and arrangements of private owners, operators, and agents of merchant vessels, with agencies of the Federal government is beyond the authority of the Coast Guard. Accordingly, the Council has no power to act upon such a request.

Routine action was taken by the Council recommending approval and withdrawal of approval of equipment submitted to the Commandant for approval pursuant to Coast Guard regulations.

## Security Shield of Honor Awarded to Petroleum Industry War Council

The United States Coast Guard paid an invasion tribute to the oil industry through the award of its Security Shield of Honor to the Petroleum Industry War Council.

Rear Admiral L. T. Chalker, Acting Commandant of the Coast Guard, made the presentation to W. R. Boyd, Jr., Chairman of the Council, in the offices of Harold L. Ickes, Petroleum Administrator for War.

The Security Shield of Honor presented was the second to be awarded by the Coast Guard; the first was given to the National Board of Fire Underwriters for port protection work throughout the United States.

The Petroleum Industry War Council is an advisory group consisting of representatives of the oil industry and was created by the Petroleum Administrator for War for the purpose of coordinating the efforts and activities of the industry in the prosecution of the war.

The award made was originated by the Port Security Division of the Coast Guard which is charged with the responsibility under Executive Order for the safety and protection of ports, vessels, and water front facilities.

In praising the concerted efforts of the oil industry in assisting the protection of outgoing cargoes, tankers, loading and water front facilities, Admiral Chalker said:

"In the discharge of its responsibility for the protection of vessels, harbors, ports, and water front facilities, the Coast Guard has been extremely fortunate in being able to avail itself of the cooperation and assistance of the Petroleum Industry War Council, which, through its national and regional committees on Protection of Petroleum Facilities, has been more than generous in making outstanding contributions of talent and energy in the solution of water front facility security problems, particularly in the prevention, control, and extinguishment of oil fires.

"As a result of this wholehearted assistance, the number and the severity of oil fires in ports have been minimized, and the movement of manpower and the implements of war to the fighting fronts has been facilitated. In behalf of the Commandant of the Coast Guard, I welcome this opportunity to pay tribute to the Petroleum Industry War Council for the valued experience and knowledge which it has contributed in the development and successful operation of our Port Security program. It is with considerable pleasure that I now have the honor of presenting to Mr. William R. Boyd, Jr., Chairman of the Petroleum Industry War Council, the second United States Coast Guard SECURITY SHIELD OF HONOR. The citation accompanying the SHIELD is as follows:



Rear Admiral Chalker Awards Shield to Mr. Boyd

"For valued and important contributions to the Port Security program of the United States Coast Guard. Since the inception of this program, the Petroleum Industry War Council, through its national and regional Committees on Protection of Petroleum Facilities, has aided in the consideration and solution of water front facility security problems, particularly the prevention, control, and extinguishment of oil fires. As a result of the assistance given, the training of Coast Guard personnel has been improved and the number and severity of oil fires in ports have been minimized, thus assisting and facilitating the safe and uninterrupted flow of manpower and war materials to the battlefronts of the world."

Mr. Boyd, in accepting the Security Shield of Honor for the Petroleum Industry War Council said:

"We accept this tribute, Admiral Chalker, in behalf of the oil industry and all of the oil workers. This industry is completely mobilized to help win the war. We have tapped the reserves of manpower, brainpower, and scientific research to bring new magic to the tremendous demands of modern warfare.

"It has been gratifying to work with Captain Norman B. Hall, chief of the Port Security Division and the 140 captains of the port and their staffs. Whether it has been in the West Indies, the continental United States, Hawaii or Alaska, we have found the Port Security functions of the Coast Guard carried out with alertness and a real understanding of the problems of the industry."

**BACK 'EM UP**

**Buy Extra War Bonds**

## Investigation of Failures in Welded Merchant Ships

IN THE JUNE ISSUE of the "Proceedings of the Merchant Marine Council" there were set forth detailed specifications for the reinforcement of welded ships of the so-called Liberty type. These detailed specifications were the result of a study undertaken and still being continued by a special board convened by the Secretary of the Navy to study the subject. In addition to the specifications, the board has now released a preliminary or interim report of its studies which is of sufficient interest to warrant reproduction in full.

In the middle of January 1943, the tanker *Schenectady* broke in half while lying at Portland, Oregon. Early in April the tanker *Esso Manhattan* broke in two while under way in ballast off the New Jersey coast. The Commandant of the Coast Guard, disturbed by these two failures, suggested to the Secretary of the Navy that a special board be convened to study the question of structural failure in welded merchant vessels. He suggested that the board be composed of personnel from the Navy, Maritime Commission, American Bureau of Shipping, and Coast Guard. As a result of this suggestion, Secretary Knox issued the following directive:

APRIL 20, 1943.

From: Secretary of the Navy.

To: Rear Admiral Harvey F. Johnson, U. S. Coast Guard, Engineer-in-Chief.

Subject: Investigation of design and methods of construction of welded steel merchant vessels.

1. A board consisting of yourself, as chairman, and of Rear Admiral E. L. Cochrane, U. S. Navy, and, subject to the approval of the Chairman of the U. S. Maritime Commission, Rear Admiral H. L. Vickery, U. S. Navy, Vice Chairman of the U. S. Maritime Commission, and, subject to the approval of the President of the American Bureau of Shipping, Mr. David Arnott, Vice President-Chief Surveyor, American Bureau of Shipping (Mr. J. Lyell Wilson, Assistant Chief Surveyor, American Bureau of Shipping, alternate), as additional members, is hereby constituted for the purpose of making an investigation into the designs of, and the methods

being followed in the construction of the welded steel merchant vessels now being constructed in the various shipyards of the nation for the purpose of determining what defects, if any, are present in such designs and methods of construction.

2. The board will make a complete investigation of the matter hereby submitted and upon the conclusion of its investigation will report the facts established thereby. If the facts establish the existence of defects in the designs of, or in the methods being followed in the construction of such merchant vessels which in the opinion of the board adversely affect the seaworthiness thereof, the board will also submit its recommendations as to the measures which should be taken to correct such defects.

3. The board is authorized to sit in Washington, D. C., and in such other places in the continental United States as it may consider necessary to the proper discharge of its duties hereunder.

[S] FRANK KNOX.

The approach to the problem made by the board with the results to date and with the enumeration of studies still to be completed are contained in the report which follows:

Interim Report of a

BOARD OF INVESTIGATION

Convened by Order of

THE SECRETARY OF THE NAVY

To Inquire Into the Design and Methods of Construction of Welded Steel Merchant Vessels

JUNE 3, 1944.

1. The precept of the Board to Investigate the Design and Methods of Construction of Welded Steel Merchant Vessels requires an investigation and report. It was evident that ship failures which gave rise to the appointment of the Board were already of concern to the agencies represented by the Board. Some remedial measures had been taken before the Board was formed. Additional remedies have been ordered since that time. This report will include mention of corrective action taken, along with the results of investigation and the Board's opinion.

2. The use of welding in lieu of riveting in ship construction has a considerable history. It had an immediate appeal to the designer of naval vessels because it offered a direct means for saving hull weight. Elimination of plating and structure represented by seam laps, butt straps and faying flanges, necessary for

rivets, was obvious and direct. On a given ship displacement, this saved weight could be devoted to battery, armor or other military load. The limitations on displacement imposed by the Washington and London Naval Treaties became impelling incentives to make use of light materials and welding to save weight so that a larger

proportion of displacement could go into military load. The superior behavior of welded structure in way of explosion forces also became apparent. The force of these advantages made it natural for the Navy to lead the way in the application and development of welding tools, materials, and procedures as applied to ships.



S.S. Valery Chkalov

3. Although the advancement of the use of welding from the lesser to the more important elements of naval ship structure could not be scheduled ahead of the technical advances in welding, progress from the early '20's up to the present time has been fairly uniform, necessarily conservative and entirely free from disastrous failure. Large combatant ships still contain a considerable number of riveted connections in carefully selected joints and the end of riveting is not yet in sight.

4. In the field of merchantship construction there is an economic incentive to produce ships with lighter hulls, made possible by welding, because the displacement devoted to cargo can be increased. The additional advantages of tightness of structure and lower maintenance cost are also realized. The character of marine risks has created a powerful, conservative force against change. Until about 1936 the application of welding to merchant ship construction was almost entirely limited to small ships and barges. From 1936 to the beginning of the war the welding of large ships was not widespread. It is interesting to note, however, that even before 1936 a few pioneers in welded merchant ship construction advanced much farther than the Navy in capitalizing the advantages afforded by welding. These advances were in the direction of shop and slab welding of large subassemblies and in the use of automatic welding.

5. War expansion of shipbuilding facilities brought into existence many completely new yards. It was accepted that welding art, design, and performance had developed to the point where completely welded ships were practical and fast to build. Equipping the new yards primarily for welding and with reduced fabricating tools, air compressors, piping systems, rubber air hose, and pneumatic tools required for riveting operations was an important factor in the relief of manpower, toolmaking capacity and in time. These considerations influenced the decision to accept the welded hull for large merchant ships.

6. The classification societies and the Bureau of Marine Inspection and Navigation reached the conclusion that experience already gained with welded hulls was sufficient to warrant this extension of the practice without

undue risk. Experience has shown that the war program of merchant-ship construction could not have been accomplished on the necessarily large scale if the advantages of welding had not been utilized to the fullest extent.

7. At the same time, the Navy realized that, as the volume of ships and craft of a type to be built increased from the peacetime few to wartime hundreds, the usual practices of shipbuilding would have to give way to line production methods. Complete welding was the natural answer to this demand. The resulting all-welded vessels of the landing craft and destroyer escort programs paralleled the small all-welded merchant vessels in having outstandingly successful performance.

8. In contrast with the performance of small naval and merchant craft, the larger merchant vessels have experienced, in certain cases, some structural difficulties resulting in fractures in the plating.

9. The scope of the investigation necessary to survey the possible defects which have led to the fracture of ship structure afloat is very large. It involves:

A. Historical Study of Recent Hull Fractures:

1. Statistical analysis.
2. Specific cases.

B. Design:

1. General.
2. Detail.
3. Full scale tests.

C. Materials:

1. Base metal.
2. Welding electrodes.

D. Construction:

1. Procedures (fitting and edge preparation—welding techniques and welding erection sequences).
2. Supervisors, inspectors, and workers.

E. Operating Conditions:

1. Loading.
2. Ballasting.
3. Weather.
4. Course, speed, and sea routes.

F. Specific Investigations.

G. International Exchange of Information.

A. Historical Study of Recent Hull Fractures.

1. Statistical analysis:

On the basis of authenticated reports received on a representative

group of 2,993 ships, fractures have occurred after launching on about 577 occasions to 432 ships up to 1 April 1944. A large proportion of these were minor in character. In the case of about 95 ships the fractures were potentially serious in that they extended well into the ship girder. Twenty vessels have suffered complete fractures of the strength deck and, of these twenty, five have completely broken in two. Two of these complete fractures occurred on vessels still at the builders' yards prior to the vessels being placed in service. Both of these vessels and one of the others which suffered a complete break after being in service have been repaired. Four of the vessels which suffered complete fractures of the strength deck but which had not been completely severed were abandoned so that only six vessels can be said to have been definitely lost to service from structural failures.

No lives have been lost as the result of structural failures, except in the case of the *John P. Gaines* where ten persons are missing after successfully embarking in a lifeboat.

Cracking in ships afloat has usually been associated with near freezing temperatures, or heavy seas, or combinations of these two conditions.

New fractures continue to develop but statistical data for ships afloat are insufficient as yet to indicate definitely the effect of corrective measures which have been taken. There is other evidence, however, that the incidence of fractures in new vessels while on the building ways has been materially reduced.

The statistical analysis shows what practically all fractures originate in discontinuities occasioned by design details and notch effects incidental to imperfect welding.

Contrary to popular impression, hull fractures are not confined to Liberty ships but are shared by other types of vessels.

2. Specific cases:

Appended are narrative accounts of the breaking in two of four of the five vessels mentioned in paragraph "A 1" and the account of one vessel typical of the fifteen ships which suffered complete fracture of the strength deck.

B. Design.

1. General:

The scantlings of all affected classes of vessels have been reexamined and

are found to have a margin of strength over the requirements of internationally accepted standards.

For service which involves many long voyages in ballast, the general design of future cargo ships should include provision for adequate amounts and proper distribution of liquid ballast.

It is generally accepted that the behavior of structure in the immediate vicinity of a welded joint will differ from that in way of a riveted joint because of the presence of rivet holes and the possibility of slippage in riveted joints. The configuration of riveted joints is usually different from welded joints and this may be a further contributing factor. The degree of importance of these differences in structural behavior is under investigation, with particular emphasis on stress strain characteristics of various welded joints.

#### 2. Detail:

The evidence so far revealed has shown that attention to detail design to minimize notch effects of square corners and other discontinuities which has been recognized as good practice in riveted ship design, is of even greater importance in the design of welded ships. Improvements in this direction are current in unfinished construction and in all new ship designs. Directives have been issued and progress is being made toward their accomplishment in ships in service. Research is in hand at government and university laboratories to explore the character of notch effect in order to guide the continued refinement of design.

Pending the accumulation of greater knowledge resulting from service experience and research as to the origin and propagation of cracks, careful consideration should be given in new welded ship designs to the provision of means for arresting the progression of cracks once started. In the case of the Liberty ships, directives have been issued for the installation of four longitudinal riveted joints in the strength deck through the mid-length for this purpose. Work is progressing as rapidly as military considerations permit.

#### 3. Full scale tests:

Full scale hogging and sagging tests, coupled with strain measurements, have been made on five ships, one T-2 tanker, and four L-6 ore car-

riers. The resulting data serve to confirm earlier tests and the generally accepted agreement between calculations with the assumptions on which they are based on the one hand and the actual ship stress on the other. A full scale hogging and sagging test is presently being undertaken on a Liberty (EC-2 cargo) ship.

#### C. Materials.

##### 1. Base metal:

Records show that all but an insignificant portion of the steel used in the hulls of welded merchant vessels meets existing specifications for quality. In the few cases where steel has been shown to fall outside the specification requirements, this fact has not been determined to contribute to the fractures. Investigations have been initiated to explore properties not now covered by specifications with a view to improvement of material performance.

##### 2. Welding electrodes.

There is no evidence that fractures in ships afloat have been caused by the inadequate quality of welding electrodes. Despite the pressure of the war emergency the quality and uniformity of welding electrodes have in general been maintained and, in some cases, improved through the cooperation of the producers. Investigations looking toward further improvement are being continued.

#### D. Construction.

Construction methods and quality of workmanship are major factors in the success or failure of welded hull structures. Some welded ships have sustained fractures while on the building ways, whereas such fractures are not experienced with riveted hulls on the ways. This is accounted for in part by specific construction practices. In some cases similarity in the character and location of fractures in ships afloat to those which occur in ships on the ways has been observed, thus indirectly indicating faulty practices as a contributing cause of fracture. In other cases fractures in ships afloat have been directly attributable to faulty practices.

Recognized good practice has been shown to reduce materially the number of fractures in ships while on the ways. The means of achieving good practice are discussed in general in the following:

1. Procedures (fitting and edge preparation—welding techniques and welding and erection sequences):

The planning and execution of procedures and sequences for welded ship construction in conformance with recognized fundamentals of good practice is essential. This planning must cover the ship as a whole as well as the details of its parts. Adequate planned procedures and sequences have been available to the shipyards. The work at the University of California (see paragraph F) is pointed toward a better understanding of the basic fundamentals of good practice and of the importance and the effects of residual, "locked-up" or "shrinkage" stresses.

At the beginning of the war emergency there was general disregard by the yards of planned procedures and sequences wherever they appeared to interfere with rapid production. Subsequent to January 1943 there has been considerable improvement in this attitude through education and recognition of the serious consequences resulting from unplanned work. Further coordination of the efforts of shipfitters and welders will contribute to additional improvements. Where production pressure makes departure from the plan mandatory a new plan for local application should be developed to avoid violation of fundamental principles. A sufficient number of competent supervisors, inspectors, and workers is essential for the execution of the plan.

2. Supervisors, inspectors, and workers:

The number of competent members of these groups has been quite inadequate and the situation does not show any appreciable improvement as intensive programs of recruitment and training have been largely offset by the rapid growth of the industry, the large labor turnover, the demands of Selective Service, and the necessity for high-speed production in the war effort.

#### E. Operating Conditions.

##### 1. Loading:

Military requirements sometimes result in a loading which is less favorable to the ship, with respect to minimizing stresses in a seaway, than normal peacetime practice. The vessels, in some cases, are loaded deeper

than in ordinary times and heavy deck loads are not uncommon. Although the amount and distribution of cargo always influences ship stresses, no structural fractures can

be traced directly to the character of loading as the primary cause.

## 2. Ballasting:

Ships generally have not been more subject to fractures when in ballast

than when loaded. Certain ballast conditions, in association with relatively light draft, resulting in comparatively large hogging moments, appear, however, to produce conditions



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S.S. John P. Gaines

favorable to the progression of cracks once started. Of the 20 ships which have broken in half or sustained complete fracture of the strength deck, 16 were in ballast and two were loaded. The remaining two of the group of 18 which failed at the builder's dock prior to going into service were adversely ballasted although not abnormally so.

### 3. Weather:

As noted in paragraph "A 1" a large proportion of fractures occurred during conditions of low temperature, heavy seas or combinations of these two conditions. Fifteen of the twenty ships which suffered severe damage were in heavy seas.

### 4. Course, speed, and sea routes:

Convoy operation necessarily limits the master in choosing course and

speed in heavy seas that would favor his ship. War operations have resulted in routing large numbers of ships over sea routes through colder and rougher ocean areas than was the case in peacetime.

In summation, adverse combinations of loading or ballasting, heavy seas and low temperature are factors contributing to structural distress. Of these factors only loading and ballasting are subject to control, course and speed being subject to only limited control while in convoy. Instructions have been issued in the case of Liberty ships, where the permanently installed arrangements for liquid ballast were not the most favorable, to insure a better distribution of ballast when conditions permit.

### F. Specific Investigations.

The following projects of inquiry have been initiated and are being pressed to the earliest possible conclusion:

(a) Statistical analysis of steel-mill products aimed at assisting the mills to obtain improved and uniform products. This subject is headed by the Bureau of Ships and contributed to by the mills, private and government laboratories.

(b) Research to show the relationship between temperature and notch sensitivity in killed, semi-killed, and rimming steels at the National Bureau of Standards.

(c) "Study of the behavior of steel under conditions of multiaxial stress and the effect on this behavior of metallographic structure and chemical composition." National Defense



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Research Project No. NRC-77, which is being conducted by the Armour Research Foundation under the guidance of the War Metallurgy Committee (Navy Project No. NS-307).

(d) "Behavior of steel under multi-axial stress and the effect of welding and temperature on this behavior." National Defense Research Council Project No. NRC-75, which is being conducted by the University of California under the guidance of the War Metallurgy Committee (Navy Project No. NS-306).

(e) "Residual stress in ship welding." National Defense Research Project No. NRC-64, which is being conducted by the University of California under the guidance of the War Metallurgy Committee (Navy Project No. NS-304).

(f) "History of residual stresses in welded ship hulls of the Liberty and oil-tanker types." National Defense Research Project No. NRC-74, which is being conducted by the University of California under the guidance of the War Metallurgy Committee (Navy Project No. NS-305).

(g) Experiments in strength of welding, which are being conducted by the Illinois Institute of Technology.

(h) Photo-elastic study of various means of hatch corner reinforcement, which is being conducted by the David Taylor Model Basin.

(i) Study of various types of crack arrestor by small scale models, conducted by David Taylor Model Basin.

(j) Crack arrestor study with large models, which is being performed at the University of Illinois.

(k) Weldability of steel for hull construction, NDRC No. NS 265 at Lehigh University.

#### G. International Exchange of Information.

Information on structural experience is being exchanged with governments of allied nations which operate American-built welded merchant vessels. The British government has organized a permanent unit known as the "Admiralty Ship Welding Committee" to study both merchant and naval ship welding problems. Information is being exchanged with this body.

#### Summary:

In 2561 of the 2993 large welded merchant vessels of the total Maritime Commission program in service up to 1 April 1944, no fractures subsequent to launching have been reported. In the remaining 432 ships, fractures which were potentially serious occurred in 95, of which 6 resulted in the loss of the vessel. Analysis of the fractures indicates the existence of phenomena in welded construction which may be of importance and to which a long and satisfactory experience of riveted construction affords no reliable guide. They include such factors as shrinkage stresses built into the hulls by the welding process, the behavior of steel at low temperatures and the stress strain characteristics inherent in the locally more rigid welded structure. A large number of research projects have been initiated and are now under way in order to determine the relative importance of these factors and with a view to de-

termining what steps should be taken in design and in construction methods to eliminate or reduce such deleterious effects as may be found. Basically, the abnormal conditions of war-time shipbuilding and ship operation, construction practices largely incidental to speed of production, and structural design details, are factors which in large measure have contributed to the occurrence of fractures. Appropriate steps have been taken to improve the two latter conditions where control is feasible but such corrective measures have not been in effect long enough to be able to state definitely at this time that they will prove completely effective.

In closing this preliminary report, the Board considers it important to record its opinion that without early and general adoption of welded construction in the merchant shipbuilding program, as well as in the naval shipbuilding program, the results in speed and volume of construction which have been accomplished would have been impossible.

/s/ HARVEY F. JOHNSON,  
Rear Admiral, USCG,  
Engineer in Chief, USCG.

/s/ H. L. VICKERY,  
Rear Admiral, USN,  
Vice Chairman,  
U. S. Maritime Commission.

/s/ E. L. COCHRANE,  
Rear Admiral, USN,  
Chief, Bureau of Ships.

/s/ DAVID ARNOTT,  
Vice President-Chief Surveyor,  
American Bureau of Shipping.

REPORT OF STRUCTURAL FAILURE OF INSPECTED VESSEL  
UNITED STATES COAST GUARD  
NAVCG-2782

This report includes all  
available information up to:  
**1 April, 1944** (Date)

DESCRIPTION OF VESSEL

NAME <b>SCHENECTADY</b>	OFFICIAL NO. <b>242620</b>	TYPE (Dry Cargo, Passenger, etc.) <b>Tank Vessel</b>	M.C. DESIGN <b>T2-SE-A1</b>
BUILDER <b>Kaiser Co., Inc., Portland, Oregon</b>	BUILDER'S HULL NO. <b>#1</b>	DATE COMPLETED <b>31 Dec. 43</b>	
OWNER <b>War Shipping Administration</b>	OPERATOR <b>Deconhill Shipping Company</b>		

EXTENT OF WELDING

<input checked="" type="checkbox"/> <b>Yes</b> SIDE SHELL SEAMS	<b>Hull all welded</b>	<input checked="" type="checkbox"/> <b>Yes</b> DECK SEAMS
<input checked="" type="checkbox"/> <b>Yes</b> SIDE SHELL BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> BOTTOM SEAMS	<input checked="" type="checkbox"/> <b>Yes</b> DECK BUTTS
<input checked="" type="checkbox"/> <b>Yes</b> FRAMES TO SIDE SHELL	<input checked="" type="checkbox"/> <b>Yes</b> BOTTOM BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> BEAMS TO DECK
<input checked="" type="checkbox"/> <b>Yes</b> BULKHEADS	<input checked="" type="checkbox"/> <b>Yes</b> FLOORS TO SHELL	<input checked="" type="checkbox"/> <b>Yes</b> DECK TO SHELL
	<input type="checkbox"/> INNER BOTTOM SEAMS	
	<input type="checkbox"/> INNER BOTTOM BUTTS	
	<input type="checkbox"/> FLOORS TO INNER BOTTOM	

CIRCUMSTANCES SURROUNDING FAILURE

(Attach all available details of ship's loading)

DATE OF FAILURE <b>16 Jan., 1943</b>	TIME <b>2230 PWT</b>	SHIP'S LOCATION <b>Tied up at fitting out pier, Swan Island</b>	
SHIP'S SPEED <b>0</b>	COURSE <b>-</b>	DRAFT FWD. <b>6'-4"</b>	DRAFT AFT <b>17'-0"</b>
SEA CONDITION <b>Still water</b>	WEATHER <b>Clear</b>	DIRECTION OF WAVES WITH RESPECT TO SHIP <b>No waves</b>	
WIND FORCE <b>Light</b>	WIND DIRECTION <b>East wind</b>	AIR TEMPERATURE <b>26° F</b>	WATER TEMPERATURE <b>40° F</b>

DESCRIPTION OF FAILURE

(Include sketch of fracture showing starting point and relative location of welds and other structural features)

APPARENT STARTING POINT <b>The fracture started at the juncture of the fashion plate at the aft starboard corner of the bridge superstructure and the sheer strake.</b>
GENERAL HISTORY AND DESCRIPTION OF FAILURE, INCLUDING KNOWN CONTRIBUTORY FACTORS: <b>Without warning and with a report which was heard for at least a mile, the deck and sides of the vessel fractured just aft of the bridge superstructure. The fracture extended almost instantaneously to the turn of the bilge port and starboard. The deck side shell, longitudinal bulkheads and bottom girders fractured. Only the bottom plating held. The vessel jack-knifed and the center portion rose so that no water entered the hull. The bow and stern settled into the silt of the river bottom. Sounding taken around the vessel eliminated the alleged possibility of the vessel having grounded amidships due to a drop in water level. A slight earth tremor was alleged to have occurred at the time of the casualty. The steel of the sheer strake was slightly below specification in yield point and ultimate strength. The deck stringer was low in yield point. Both steels were notch sensitive at low temperature, but there is no existing specification for this characteristic.</b> (continued on reverse side)
CLASSIFICATION OF FAILURE <b>Broke in two</b>

DISPOSITION OF VESSEL  
(Repaired, lost, etc.)

<b>Vessel repaired and put in service.</b>	
SIGNED (Name and Title)	DISTRICT

REPORT OF STRUCTURAL FAILURE OF INSPECTED VESSEL  
UNITED STATES COAST GUARD  
NAVCG-2752

This report includes all  
available information up to:  
**1 April, 1944** (Date)

DESCRIPTION OF VESSEL

NAME <b>ESSO MANHATTAN</b>	OFFICIAL NO. <b>242157</b>	TYPE (Dry Cargo, Passenger, etc.) <b>Tank Vessel</b>	M.C. DESIGN <b>T2-GE-A1</b>
BUILDER <b>Sun Shipbuilding &amp; Dry Dock Company</b>	BUILDER'S HULL NO. <b># 267</b>	DATE COMPLETED <b>22 Aug., 42</b>	
OWNER <b>Standard Oil Co. of New Jersey</b>	OPERATOR <b>Standard Oil Co. of New Jersey</b>		

EXTENT OF WELDING

<input checked="" type="checkbox"/> <b>Yes</b> SIDE SHELL SEAMS	<b>Hull all welded</b>		<input checked="" type="checkbox"/> <b>Yes</b> DECK SEAMS
<input checked="" type="checkbox"/> <b>Yes</b> SIDE SHELL BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> BOTTOM SEAMS	<input type="checkbox"/> INNER BOTTOM SEAMS	<input checked="" type="checkbox"/> <b>Yes</b> DECK BUTTS
<input checked="" type="checkbox"/> <b>Yes</b> FRAMES TO SIDE SHELL	<input checked="" type="checkbox"/> <b>Yes</b> BOTTOM BUTTS	<input type="checkbox"/> INNER BOTTOM BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> BEAMS TO DECK
<input checked="" type="checkbox"/> <b>Yes</b> BULKHEADS	<input checked="" type="checkbox"/> <b>Yes</b> FLOORS TO SHELL	<input type="checkbox"/> FLOORS TO INNER BOTTOM	<input checked="" type="checkbox"/> <b>Yes</b> DECK TO SHELL

CIRCUMSTANCES SURROUNDING FAILURE  
(Attach all available details of ship's loading)

DATE OF FAILURE <b>29 March, 1943</b>	TIME <b>1205 EWT</b>	SHIP'S LOCATION <b>40 fathoms of water</b>	
SHIP'S SPEED <b>14 knots</b>	COURSE <b>121° True</b>	<b>3/4 mile inshore buoy 3, Ambrose Channel, N. Y.</b>	
SEA CONDITION <b>Slight ground swell</b>	WEATHER <b>Clear</b>	DRAFT FWD. <b>12'-1"</b>	DRAFT AFT <b>18'-7"</b>
WIND FORCE <b>Force 2</b>	WIND DIRECTION <b>Northeast</b>	DIRECTION OF WAVES WITH RESPECT TO SHIP <b>On port bow</b>	
	AIR TEMPERATURE <b>30° to 40°</b>	WATER TEMPERATURE <b>Not known</b>	

DESCRIPTION OF FAILURE

(Include sketch of fracture showing starting point and relative location of welds and other structural features)

APPARENT STARTING POINT <b>The fracture started in a butt weld between plates A-9 and A-10 at the crown of the deck.</b>
GENERAL HISTORY AND DESCRIPTION OF FAILURE, INCLUDING KNOWN CONTRIBUTORY FACTORS: <b>With a sound described variously as a thump, thud, bang, crash or explosion, the fracture ran across the deck in way of #6 tank, and down both sides, progressing to the bilge port and starboard. The vessel jack-knifed and the bow dug under an oncoming wave. The crew abandoned in the boats and were picked up by the USCG KIMBALL. The bottom fractured later and the two portions drifted apart. Subsequent examination and tests of the steel in the vicinity of the starting point and from each plate around the periphery of the hull near the fracture indicated that it met existing standards. The chemistry was normal for the class of steel. Impact and notch bend tests showed that much of the steel was sensitive to notches and low temperature. The butt weld in which the crack started contained oxide, slag and porous areas.</b>
CLASSIFICATION OF FAILURE <b>Broke in two</b>

DISPOSITION OF VESSEL  
(Repaired, lost, etc.)

<b>Repaired on drydock at Todd Erie Basin and returned to service.</b>	
SIGNED (Name and Title)	DISTRICT

REPORT OF STRUCTURAL FAILURE OF INSPECTED VESSEL  
UNITED STATES COAST GUARD  
RACG-2752

This report includes all  
available information up to:  
**1 April, 1944** (Date)

DESCRIPTION OF VESSEL

NAME <b>JOHN P. GAINES</b>	OFFICIAL NO. <b>243861</b>	TYPE (Dry Cargo, Passenger, etc.) <b>Dry Cargo Vessel</b>	M.C. DESIGN <b>EC2-S-C1</b>
BUILDER <b>Oregon Shipbuilding Corporation</b>	BUILDER'S HULL NO. <b># 723</b>	DATE COMPLETED <b>8 July, 43</b>	
OWNER <b>War Shipping Administration</b>	OPERATOR <b>Northland Transportation Co., Inc.</b>		

EXTENT OF WELDING

<input checked="" type="checkbox"/> <b>Yes</b> SIDE SHELL SEAMS	<input checked="" type="checkbox"/> <b>Yes</b> DECK SEAMS
<input checked="" type="checkbox"/> <b>Yes</b> SIDE SHELL BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> DECK BUTTS
<input checked="" type="checkbox"/> <b>Yes</b> FRAMES TO SIDE SHELL	<input checked="" type="checkbox"/> <b>Yes</b> BEAMS TO DECK
<input checked="" type="checkbox"/> <b>Yes</b> BULKHEADS	<input checked="" type="checkbox"/> <b>Yes</b> DECK TO SHELL
<input checked="" type="checkbox"/> <b>Yes</b> BOTTOM SEAMS	<input checked="" type="checkbox"/> <b>Yes</b> INNER BOTTOM SEAMS
<input checked="" type="checkbox"/> <b>Yes</b> BOTTOM BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> INNER BOTTOM BUTTS
<input checked="" type="checkbox"/> <b>Yes</b> FLOORS TO SHELL	<input checked="" type="checkbox"/> <b>Yes</b> FLOORS TO INNER BOTTOM

CIRCUMSTANCES SURROUNDING FAILURE  
(Attach all available details of ship's loading)

DATE OF FAILURE <b>24 Nov., 1943</b>	TIME <b>0241</b>	SHIP'S LOCATION <b>55-07 N 155-30 W</b>
SHIP'S SPEED <b>9 knots</b>	COURSE <b>Dutch Harbor to Seattle, 76° true</b>	DRAFT FWD. <b>13'-0"</b>
SEA CONDITION <b>Long ground swell</b>	WEATHER <b>Fairly clear</b>	DRAFT AFT <b>10'-0"</b>
WIND FORCE <b>5-6 Beaufort</b>	WIND DIRECTION <b>ENE</b>	DIRECTION OF WAVES WITH RESPECT TO SHIP <b>15°-20° off port bow</b>
	AIR TEMPERATURE <b>40°-45° F</b>	WATER TEMPERATURE <b>About 40° F</b>

DESCRIPTION OF FAILURE

(Include sketch of fracture showing starting point and relative location of welds and other structural features)

APPARENT STARTING POINT <b>Near Fwd. corners #3 hatch between frs. #74 and #75.</b>
GENERAL HISTORY AND DESCRIPTION OF FAILURE, INCLUDING KNOWN CONTRIBUTORY FACTORS: <b>At about 2200 on 23 November, 1943, loud noises were heard but the source could not be located in the dark. At about 0241 on 24 Nov., 1943, an exceptional sea known locally as a "freak" or "sneaker" struck the port bow, curled around the stem, and boarded near the forward gun. The fracture which had apparently commenced during the night immediately propagated. It appears that the vessel broke partially as it passed either over or between swells and the following swell completely broke off the forward end. All crew and passengers were on the after end. Survivors were picked up by U. S. Army Transports except for 10 men, including six soldiers in one lifeboat, which was lost.</b>
CLASSIFICATION OF FAILURE <b>Broke in two</b>

DISPOSITION OF VESSEL  
(Repaired, lost, etc.)

<b>The bow is believed to have sunk. The stern is aground on Big Koniuj Island.</b>	
SIGNED (Name and Title)	DISTRICT

This report includes all  
available information up to:  
**1 April, 1944** (Date)

DESCRIPTION OF VESSEL

NAME <b>VALERY CHKALOV</b>	OFFICIAL NO. <b>None</b>	TYPE (Dry Cargo, Passenger, etc.) <b>Dry Cargo Vessel</b>	M.C. DESIGN <b>EC2-S-C1</b>
BUILDER <b>Permanente Metals Corporation Richmond Shipyard #2</b>	BUILDER'S HULL NO. <b># 481</b>	DATE COMPLETED <b>17 Apr., 43</b>	
OWNER <b>War Shipping Administration</b>	OPERATOR <b>Union of Soviet Socialist Republics</b>		

EXTENT OF WELDING

<input checked="" type="checkbox"/> <b>Yes</b> SIDE SHELL SEAMS			<input checked="" type="checkbox"/> <b>Yes</b> DECK SEAMS
<input checked="" type="checkbox"/> <b>Yes</b> SIDE SHELL BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> BOTTOM SEAMS	<input checked="" type="checkbox"/> <b>Yes</b> INNER BOTTOM SEAMS	<input checked="" type="checkbox"/> <b>Yes</b> DECK BUTTS
<input checked="" type="checkbox"/> <b>Yes</b> FRAMES TO SIDE SHELL	<input checked="" type="checkbox"/> <b>Yes</b> BOTTOM BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> INNER BOTTOM BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> BEAMS TO DECK
<input checked="" type="checkbox"/> <b>Yes</b> BULKHEADS	<input checked="" type="checkbox"/> <b>Yes</b> FLOORS TO SHELL	<input checked="" type="checkbox"/> <b>Yes</b> FLOORS TO INNER BOTTOM	<input checked="" type="checkbox"/> <b>Yes</b> DECK TO SHELL

CIRCUMSTANCES SURROUNDING FAILURE  
(Attach all available details of ship's loading)

DATE OF FAILURE <b>11 Dec., 1943</b>	TIME <b>1210</b>	SHIP'S LOCATION <b>Latitude 35° N, Longitude 168°-25' W</b>	
SHIP'S SPEED <b>Cut by storm</b>	COURSE <b>Sovetskaya Gavan - Siberia to Akutan, Alaska</b>	DRAFT FWD. <b>Not known</b>	DRAFT AFT <b>Not known</b>
SEA CONDITION <b>Heavy</b>	WEATHER <b>Heavy storm, vis. 0</b>	DIRECTION OF WAVES WITH RESPECT TO SHIP <b>Apparently a head sea</b>	
WIND FORCE <b>6 to 8</b>	WIND DIRECTION <b>Not known</b>	AIR TEMPERATURE <b>29° - 34°</b>	WATER TEMPERATURE <b>Not known</b>

DESCRIPTION OF FAILURE

(Include sketch of fracture showing starting point and relative location of welds and other structural features)

APPARENT STARTING POINT <b>The cracks which finally broke the vessel started exactly in the forward corners of #3 hatch port and starboard.</b>
GENERAL HISTORY AND DESCRIPTION OF FAILURE, INCLUDING KNOWN CONTRIBUTORY FACTORS: <b>The vessel departed from Sovetskaya on 1 Dec., 1943, in ballast. Gales and heavy seas were encountered after departure. At noon on 11 Dec., 43, a loud report was heard and three cracks were found, one on the port side at Fr. #74; one on stbd. side at Fr. #74; and one on the stbd. side at Fr. #76. The port side crack extended from the hatch corner across the deck and down the shell to the bilge. The stbd. crack at Fr. #74 was in the side shell to the bilge. The stbd. crack at Fr. #74 was in the side shell from the sheer strake to the tween deck. The stbd. crack at Fr. #76 ran down the side shell from the sheer strake halfway down the tween decks. The vessel was taken in tow by the tug "Joseph Stalin" but at 2206 on 13 Dec. she broke completely in two. Both portions were taken in tow by U. S. Navy tugs and brought to anchorage. The crews did not abandon ship. Ballasting details will be made available by the USSR in the near future.</b>
CLASSIFICATION OF FAILURE <b>Broke in two</b>

DISPOSITION OF VESSEL  
(Repaired, lost, etc.)

<b>Both portions at anchor in Sand Bay, Great Sitkin Island. Future undetermined.</b>	
SIGNED (Name and Title)	DISTRICT

REPORT OF STRUCTURAL FAILURE OF INSPECTED VESSEL  
UNITED STATES COAST GUARD  
NAVCG-2782

This report includes all  
available information up to:

1 April, 1944 (Date)

DESCRIPTION OF VESSEL

NAME <b>SAMUEL DEXTER (2)</b>	OFFICIAL NO. <b>243200</b>	TYPE (Dry Cargo, Passenger, etc.) <b>Dry Cargo Vessel</b>	M.C. DESIGN <b>EC2-S-C1</b>
BUILDER <b>Delta Shipbuilding Co., Inc.</b>	BUILDER'S HULL NO. <b># 42</b>	DATE COMPLETED <b>15 Apr. 43</b>	
OWNER <b>War Shipping Administration</b>	OPERATOR <b>Waterman Steamship Agency, Ltd.</b>		

EXTENT OF WELDING

<input checked="" type="checkbox"/> <b>Yes</b> SIDE SHELL SEAMS	<b>Hull all welded</b>		<input checked="" type="checkbox"/> <b>Yes</b> DECK SEAMS
<input checked="" type="checkbox"/> <b>Yes</b> SIDE SHELL BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> BOTTOM SEAMS	<input checked="" type="checkbox"/> <b>Yes</b> INNER BOTTOM SEAMS	<input checked="" type="checkbox"/> <b>Yes</b> DECK BUTTS
<input checked="" type="checkbox"/> <b>Yes</b> FRAMES TO SIDE SHELL	<input checked="" type="checkbox"/> <b>Yes</b> BOTTOM BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> INNER BOTTOM BUTTS	<input checked="" type="checkbox"/> <b>Yes</b> SEAMS TO DECK
<input checked="" type="checkbox"/> <b>Yes</b> BULKHEADS	<input checked="" type="checkbox"/> <b>Yes</b> FLOORS TO SHELL	<input checked="" type="checkbox"/> <b>Yes</b> FLOORS TO INNER BOTTOM	<input checked="" type="checkbox"/> <b>Yes</b> DECK TO SHELL

CIRCUMSTANCES SURROUNDING FAILURE  
(Attach all available details of ship's loading)

DATE OF FAILURE <b>21 Jan., 1944</b>	TIME <b>2100</b>	SHIP'S LOCATION <b>Lat. 54°-48' N; Long. 22°-45' W</b>	
SHIP'S SPEED <b>Hove to 47 RPM</b>	COURSE <b>United Kingdom to New York</b>	DRAFT FWD. <b>9'-8"</b>	DRAFT AFT <b>21'</b>
SEA CONDITION <b>High seas</b>	WEATHER <b>Bad weather</b>	DIRECTION OF WAVES WITH RESPECT TO SHIP <b>3 points on stbd. bow</b>	
WIND FORCE <b>8</b>	WIND DIRECTION <b>WSW</b>	AIR TEMPERATURE <b>40°</b>	WATER TEMPERATURE <b>48°</b>

DESCRIPTION OF FAILURE

(Include sketch of fracture showing starting point and relative location of welds and other structural features)

APPARENT STARTING POINT <b>Forward corners of #3 and #4 hatches port and starboard, all four cracks starting exactly in corner. Aft port corner #3 hatch 3 cracks. Starting point uncertain.</b>
GENERAL HISTORY AND DESCRIPTION OF FAILURE, INCLUDING KNOWN CONTRIBUTORY FACTORS: <b>At 2100 on 21 Jan., deck cracked opposite #3 hatch and vessel was turned with stern to sea. At 2116 deck cracked at #4 hatch. A thorough examination was made on 22 Jan. and the two cracks from the Ford. corners of #3 hatch were found to extend across the deck and down the side to below the 2nd deck port and starboard. The crack across the deck from the stbd. fwd. corner of #4 ran down the side below the waterline. The top of #3 deep tank in #4 hold was partially cracked. The crack from the port fwd. corner of #4 ran across the deck a distance of 2'. The weather moderated during the 22 to 24 January but a watch was kept on the cracks which were gradually increasing and opened and closed 1" in the seaway. Bad weather was forecast so between 1530 and 1630 on 24 January, the vessel was abandoned.</b>
CLASSIFICATION OF FAILURE <b>Cracked deck.</b>

DISPOSITION OF VESSEL  
(Repaired, lost, etc.)

<b>Vessel drifted ashore on Barra Island of the Hebrides. Future undetermined.</b>	
SIGNED (Name and Title)	DISTRICT

## LOADING AT TIME OF FAILURE

## "ESSO MANHATTAN"

Distribution of Weights:	Long tons
Forepeak	314
Cargo Tank #1 P	388
S	388
#2 P	6
S	6
Cl	1,385
#3 P	16
S	16
#4 P	20
S	20
#9 P	21
S	21
Cl	1,330
F. W. Tanks	70
F. O. Bunkers	240
F. O. Bunkers	240
I. B. Tank 11-27 P	41
I. B. Tank 27-44 P	82
I. B. Tank 11-27 S	31
I. B. Tank 27-44 S	84
Dist. Water Tank	18
F. W. Tank Aft	29
Aft Peak	56
L. O. Storage	2
Lightship	5,455
Stores & Complement	65

Displacement 10,344

Corresponding Keel Drafts: 18'-6-5/8" Aft., 12'-1-1/8" Fwd.

At the time of the failure, the tanks were reported to be in the condition shown to the left. This was checked after the two portions had been towed into port. The vessel was taking ballast in accordance with the Navy schedule, but due to damaged valves in #7 and #9 tanks, which valves were to be repaired on the outbound voyage, the schedule was not being strictly followed. The ends of the vessel contained proportionately more ballast. The uniform calculated stress in the crown of the deck in still water and in the condition noted is 12,300 lbs. per sq. inch.

It should be noted that the vessel drafts were otherwise reported to be 15' Fwd. and 22'-8" aft, also 17'-6" Fwd. and 23' aft. It is believed that the calculated drafts (to left) based upon an accurate deadweight determination made in February 1943 are more nearly correct.

## "SCHENECTADY"

Distribution of Weights:	Long tons
Forepeak	314
Cargo tanks	0
F. W. Tanks	71
F. O. Bunkers Fwd	745
F. O. Bunkers in E. R.	486
I. B. Tank 11-27 P. & S.	73
I. B. Tank 27-44 P. & S.	166
Ammunition Ford	20
Ammunition Aft	10
Dist. Water Tank	36
F. W. Tank Aft	29
Aft Peak	56
Lightship	5,202
Stores & Complement	40

Displacement 7,230

Corresponding Keel Drafts: 7.0' Fwd., 15.2' Aft.

On the basis of the loading indicated to the left, bending moment calculations were made. The uniform calculated stress in the crown of the upper deck in still water is 10,700 lbs./in.<sup>2</sup>

## "JOHN P. GAINES"

Distribution of Weights:	Long tons
Lightship	3,670
Crew, passengers & stores	60
Fuel oil, I. B. #1 Cl	132
#2 P & S	313
#3 P & S	232
#5 P & S	232
#6	108
#3 deeps	197
Settling tanks	83
Fresh water:	
Potable water tank	46
Reserve feed tank	132
Forepeak	115
Aftpeak	155
Lazarette	99
Salt water ballast:	
#1 deep tanks P & S	228
#2 deep tanks P & S	420
Hold #4	400
Hold #5	330
Cargo Hold #1 Empty drums	81
#3 Empty & full drums	442
#4 Empty drums	47
#5 Empty drums	50

Displacement 7,572

Corresponding Keel Drafts: 12.15' Fwd., 20.17' Aft.

On the basis of the loading shown to the left, indicating the condition at the time of departure from Dutch Harbor, bending moment calculations were made. The uniform calculated stress in the crown of the upper deck when on a standard wave with crest amidships is 15,600 lbs./in.<sup>2</sup>

## "SAMUEL DEXTER" (2)

Distribution of Weights:	Long tons
Lightship	3,670
Crew, passengers & stores	30
Fuel oil:	
Settling tanks	100
Deep tank #3	613
Fresh water:	
Potable water tank	45
Reserve feed	132
Forepeak	141
Aftpeak	155
Salt water ballast:	
Deep tank #2	420
Inner bottom #1	144
#2	559
#3	252
#5	252
#6	118
Ballast in holds	
#2	250
#3	250
#4	500
#5	500

Displacement 7,911

Corresponding Keel Drafts: 10.51' Fwd., 23.05' Aft.

On the basis of the loading shown to the left, bending moment calculations were made. The uniform calculated stress in the crown of the upper deck when on a standard wave with crest amidships is 16,700 lbs./in.<sup>2</sup>

# The Federal Register Act

IN order for the merchant marine industry to be fully informed on matters pertaining to the merchant marine, particularly rules and regulations and listings of approved equipment, it is recommended that the Federal Register be used. New regulations and amendments or changes in the inspection and navigation regulations governing the merchant marine, as well as the approval or withdrawal of approval by the Commandant, U. S. Coast Guard, of equipment for the better security of life at sea are first published in the Federal Register. The Federal Register is published daily, except Sundays, Mondays, and the days following legal holidays, and contains all of the rules and regulations promulgated by the Federal Government.

The Federal Register was established by Congress under the Federal Register Act of July 26, 1935, so that a uniform method of publication of all administrative rules and regulations and similar documents would be used. By a later amendment to the Federal Register Act all government agencies were required to codify the outstanding rules and regulations issued on or before June 1, 1938, which were of general applicability and legal effect. The Five-Year Cumulative Supplement is now being prepared by the Federal Register and covers the period from June 1, 1938, to June 1, 1943. The Code of Federal Regulations of the United States is divided into fifty titles analogous to and closely paralleling the titles of the United States Code. Each title is devoted to a single governmental function, but embraces regulations of one or more agencies. The rules and regulations published in the Federal Register are keyed to the Code of Federal Regulations. The rules and regulations prescribed and promulgated by the Commandant and enforced by the Coast Guard are contained in Title 33, Navigation and Navigable Waters, Chapters I and III, and Title 46, Shipping, Chapter I.

In order to prevent confusion the Coast Guard changed the style and numbering system in the various publications of rules and regulations affecting the merchant marine to agree with the Code of Federal Regulations. Thus an amendment or new regulation appearing in the Federal Register can be also inserted in the applicable Coast Guard publication without any difficulty. To keep abreast of the latest changes in the regulations, it is recommended that the Federal Register be used.

The Federal Register Act provides that sufficient notice is given of the rules and regulations to any person subject thereto or affected thereby by simply publishing them in the Federal

Register, except in cases where notice by publication is insufficient in law. To simplify the actual proof of rules and regulations, the Federal Register Act provides that the publication of any document in the Federal Register creates a rebuttable presumption that: (1) it was duly issued, prescribed, or promulgated; (2) it was duly filed with the Division of the Federal Register and made available for public inspection; (3) the copy contained in the Federal Register is a true copy of the original; and, (4) all requirements of the Federal Register Act and the regulations prescribed thereunder relative to such document have been complied with. For the presentation of regulations as evidence in courts, this act states that "the contents of the Federal Register shall be judicially noticed and without prejudice to any other mode of citation may be cited by volume and page number." Therefore, the regulations in the Code of Federal Regulations and in the Federal Register are prima facie evidence of the effect of such regulations and of the fact that they are in full force and effect on and after the date of publication thereof.

The Merchant Marine Inspection Regulations are contained in Title 46, Shipping, of the Code of Federal Regulations. The various titles of the Code of Federal Regulations are divided into chapters, subchapters, and parts, assigned to various governmental agencies. In Title 46 there are now 3 chapters assigned as follows:

Chapter I—Coast Guard, Inspection and Navigation.

Chapter II—United States Maritime Commission.

Chapter III—War Shipping Administration.

In Chapter I, Coast Guard, Inspection and Navigation, of Title 46, Shipping, the regulations are further divided by subchapters, parts, and sections. The subchapters of Chapter I, Title 46, are as follows:

Subchapter C—Motorboats, and Certain Vessels Propelled by Machinery Other Than By Steam More Than 65 Feet in Length.

Subchapter D—Tank Vessels.

Subchapter E—Load Lines.

Subchapter F—Marine Engineering.

Subchapter G—Ocean and Coastwise, General Rules and Regulations.

Subchapter H—Great Lakes, General Rules and Regulations.

Subchapter I—Bays, Sounds, and Lakes Other Than the Great Lakes, General Rules and Regulations.

Subchapter J—Rivers, General Rules and Regulations.

Subchapter K—Seamen.

Subchapter L—Overtime Services.

Subchapter M—Construction or Material Alteration of Passenger Vessels of the United States of 100 Gross Tons and Over Propelled by Machinery.

Subchapter N—Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels.

Subchapter O—Regulations Applicable to Certain Vessels and Shipping During Emergency.

Subchapter P—General Provisions.

The publications of Merchant Marine Inspection Regulations in pamphlet or booklet forms since the distribution of the Code of Federal Regulations have been based on this codification, as amended, for style. The numbering system used in the various publications is the same as that provided in the Code of Federal Regulations. This has resulted in simplifying the citation of regulations. Chapter and subchapter need not be mentioned, nor is it necessary to use the terms, "title," "part," "section," and "subsection," in giving a citation. The proper form is, for example, "46 C. F. R. 59.11," which refers to section 59.11 of Title 46, Chapter I, Subchapter G, of the Code of Federal Regulations. Such a reference needs no further explanation and can be used with the same freedom as a citation from the United States Code. The numbers assigned to individual sections within a part include (1) the number of the part in which the section is placed, followed by a decimal point; and (2) the serial number following the decimal point assigned the section within the part. Such serial number may consist of one or more digits in Arabic as may be required. The Federal Register Regulations also require that sections should be internally numbered whenever the lack of such numbering would result in difficulty or ambiguity of citation. In this internal numbering, sections may be divided into paragraphs, designated by lower case letters in parentheses; paragraphs into subparagraphs, designated by Arabic numbers in parentheses; and subparagraphs into subdivisions, designated by lower case Roman numerals in parentheses. An example is 46 C. F. R. 153.6a (a) (7) (i).

In Subchapters G, H, I, J, K and O, of Chapter I, Title 46, Code of Federal Regulations, a reference system is used where sections are identical. This does away with the reprinting of the same regulation two or more times in one chapter. Where sections are identical, the headnote of the section is given and following in parenthesis is the phrase, "See section — of this chapter," or "See section —

of this chapter which is identical with this chapter." In the publications of regulations by the Coast Guard the text of each regulation is given so that the publication will be complete in itself.

The remarks in this article are also applicable to other Coast Guard regulations published in Title 33, Navigation and Navigable Waters, Chapters I and III.

The Federal Register is a serial publication of the Division of the Federal Register, The National Archives. It is printed by the Government Printing Office and may be subscribed to at a rate of \$1.50 per month or \$15 a year. Single copies may also be purchased, but the price varies in proportion to the size of the issue. All requests for Federal Registers should be made to the Superintendent of Documents, Government Printing Office, Washington, D. C.

The Code of Federal Regulations of the United States and the Cumulative Supplement of the Code of Federal Regulations may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. The cumulative supplement is being prepared by the Federal Register and will be contained in approximately eight or nine volumes. Four books, covering Titles 1 to 25 of the Code are already completed and may be obtained at the cost of \$3.00 per volume.

## Hints for Security and General Inspections

### GENERAL SAFETY PRECAUTIONS

**Hatches.**—Examine tarpaulins, secure battens and wedges and maintain watertightness.

**Watertight doors.**—Keep securely closed and dogged when openings are not in use for passage.

**Weather doors.**—Keep securely closed except when being used for entrance or exit.

**Airports.**—Examine gaskets and secure tightly with "dogs" when conditions of wind and sea so demand. See that deadlights fit properly and keep at hand ready for use.

**Deck cargo.**—Examine all lashings and chocks for security.

### FIRE-FIGHTING EQUIPMENT

**Fire hose.**—Examine frequently for defects. See that the holder clamps or pins in rack are free. If enclosed

in cabinets, see that door latch can be readily opened. See that gaskets fit in good order for connection and that nozzles and spanners are in place.

**Fire extinguishing system.**—Examine all control valves and see that they are in good order and ready for immediate use. Do not operate valves.

**Portable fire extinguishers.**—See that they are properly filled and secured in place where they can be readily removed for use.

**Fire axes.**—See that they are kept in place and handy for use. See that handles fit snugly to heads and that cutting edge is smooth.

**Air and gas masks.**—Examine for condition and see that they are readily available for use.

### EMERGENCY STEERING GEAR

Test out frequently and have necessary tools handy to throw in gear quickly if needed.

### BLACKOUT PRECAUTIONS

Observe rigidly. Eliminate all light reflections; also noise, such as ringing of bells or blowing down of boilers. Do not smoke on deck or show any light at night.

### LIFEBOATS

Check all equipment frequently when at sea. Examine thoroughly when in port.

See that oars, boathooks, radio mast, etc., are in order and properly lashed.

See that rowlocks are properly secured, ready for shipping in sockets. See that rudder fits properly and is attached to boat with lanyard.

Examine all sails and attached gear. Dry and set sails occasionally for training.

Examine bulk drinking water and provision containers frequently.

See that boat painters are properly attached and led out and are not chafed.

If boats are carried swung out, see that the forward and after guys from the davit heads are kept taut.

See that frapping lines are provided for lifeboat falls in case they are needed.

See that riding puddings are properly placed immediately under the gunwale, and in way of a thwart.

See that a hammer or bar is provided to release the pelican hook on the griping-in bridles.

If boats are carried inboard, see that the gripes are secured and falls

moderately taut; see that crank handles are attached in place.

Drain any water out of the boats and see that plugs are secure.

Note that the lifeboat fall reels are clear for running.

Always leave a little slack on the span between the davit heads to which the life lines are attached; otherwise, damage may be sustained if both davits are not cranked out at equal speed.

Operate motorboat engines frequently.

Operate and lubricate hand-propelling gear frequently.

See that there is no stowage of stores or any other gear on boat deck in way of lifeboats.

See that the turns of the falls are properly placed on the lowering bits.

See that the embarkation nets are properly secured and stowed ready for dropping promptly into position.

Where required, see that embarkation ladders are properly placed and readily available for use.

If vessel is loaded, shorten life lines and net so that there will not be too much dragging in the water when released. They are liable to become entangled and capsize the boat if vessel is rolling or a heavy sea is running.

### LIFE RAFTS

See that they are carried high enough on skids to properly engage the securing clips at upper end.

See that releasing plate at base is in free working order and all the assembly in good condition.

Note that painter is coiled clear for running and is not chafing.

Examine all water lights and be assured they will ignite and that they are secured so that they will fall free of the vessel when rafts are launched.

Examine all water and provision containers carefully.

Check all other equipment.

### LIFE FLOATS

See that this equipment is stowed so that it will float free and can be readily launched overboard.

Note that the water lights are properly attached and will ignite.

See that the water lights on ring buoys are properly attached and will ignite.

### LIFE PRESERVERS

See that they are at hand, in good conditions and ready for each individual's immediate use.

See that additional life preservers in boxes are kept in good condition and that they can float out of the boxes.

#### LIFE PRESERVER SUITS

See that each seaman pays particular attention to keeping his suit stowed in the proper manner and keeps it in good order so it can be donned quickly.

#### LIGHTS

Examine all portable emergency lights. See that they are kept in their respective positions and will ignite.

See that all stationary emergency lights will ignite.

Test all emergency flashlights.

Have each seaman take care of his life preserver light and see that it will ignite, and renew batteries in all these lights as required.

#### MISCELLANEOUS

*Abandon ship kits.*—See that they are kept handy for placing in lifeboats.

*Portable radio transmitter.*—Keep handy for placing in lifeboats, with lanyard for lowering if needed.

*Whistles.*—Keep in good order—every man to take care of his own.

*Jackknives.*—See that blades are clean and hinges oiled. Every man should carry his own, or keep close at hand.

*Luminous tape markings.*—See that this tape is effectively and properly maintained.

*Emergency escapes.*—See that they are kept free and clear of all obstructions. See that emergency ladders are kept in place and properly secured.

*Additional clothing.*—Always keep additional clothing at hand, whether vessel is in cold or warm latitudes.

*Checking sheets.*—Obtain copies of Equipment Checking Sheets for Boats and Rafts as contained in Wartime Safety Measures.

## Coast Guard Meets With Lake Carriers

ON June 1st a board from Coast Guard Headquarters met with representatives of the Great Lakes Carriers' Association in Cleveland. Rear Admiral J. F. Farley was chairman of the board, Captain H. C. Shephard, vice chairman, and Captain R. T. Merrill, member. Captain John S. Delano and Commander R. F. Farwell accompanied the board as technical advisors.

## Tillamook Rock Light Station

TILLAMOOK ROCK Light Station is one of the most famous, as well as one of the most exposed light stations in the United States. The Station was established in 1881 and was constructed on a high, precipitous rock about one mile offshore from Tillamook Head on the Oregon Coast.

Construction work at the site was first undertaken in September 1879. The rock is surrounded by water over 100 feet deep and the work was very difficult to carry on. In fact, the construction foreman was drowned when landing to examine the rock. Later men and supplies were landed by a traveler running on a cable from the vessel to the rock.

There was great difficulty in providing protection for the workmen, as in heavy storms the waves broke over the rock. Temporary shelter was obtained by canvas lashed to ring-bolts in the rock, until a strong timber barracks was erected in the most sheltered spot that could be found, high up on the north side.

The construction crew remained on the rock during the winter 1879-80, blasting off the top of the rock from its original height of 112 feet to create sufficient room for the lighthouse. In a storm in January of 1880 the waves were carried by the wind over the rock continuously for many days, washing away the supply house, but the men escaped.

During the height of this storm an English bark was driven on the coast about a mile from the rock and all hands were lost. Despite the fury of the storm a warning bonfire had been built on the rock. The light was first shown January 21, 1881.

The extremely exposed position of the light station and the severe conditions often prevailing are shown in many reports. During a storm in January 1883, stones were thrown by the waves onto the fog signal building, and many holes smashed in the iron roof. In December 1886, a mass of concrete weighing half a ton was thrown over the fence into the enclosure which stands 83 feet above sea level. In a storm of December 1887, the keepers reported that the seas

broke over the building, some going above the tower. Lantern panes, 133 feet above the sea, were broken by the force of the waves.

The following account of a later storm is indicative of the work being done by the Coast Guard in maintaining these aids to navigation during peace and war, during fair weather and foul.

"Repeatedly the entire station was completely submerged in tremendous seas which, meeting the precipitous side of the great rock, swept upward and over the masonry and ironwork structure surmounting the crest. A section of the rock itself was torn away, great fragments of it being thrown over the station, many of them through the plate glass of the first order lantern, 16 panels of which were shattered with rock fragments 60 pounds in weight falling inside.

"Unbroken seas flooded the lantern, filling the watchroom, where the keepers struggled to erect storm shutters in the shattered lantern panels, submerged at times to their necks before the rush of water could escape through the door into the tower and quarters below. The intruding seas brought fragments of rock and glass, and even small fish with the flotsam.

"The storm raged for four days, the great seas thundering over the rock, preventing the keepers from leaving the confines of the tower and quarters. When the storm subsided, the keepers cleared the exposed cowl resonators on the roof of the main building which were choked with rock fragments and other debris which had rendered the fog signal sirens inoperative during the storm.

"They set new plate glass in the lantern panels and continued their efforts to repair the lens. The massive derrick, which constituted the only means of transferring men and supplies to and from the station had been completely demolished and carried away with all its gear.

"Steel water tanks had been shifted on their foundations, pipe lines and heavy iron balustrades broken, footing walls of the building breached, and pipe lines of the heating system under the building damaged."

# APPENDIX

## Amendments to Regulations

### TITLE 46.—SHIPPING

#### Chapter I—Coast Guard Inspection and Navigation

##### SUBCHAPTER D—TANK VESSELS

###### PART 34—FIRE-FIGHTING EQUIPMENT

Section 34.2-5 (a) is deleted and the following is substituted instead:

§ 34.2-5 *Fire pump relief valves and piping—T/ALL.* (a) Fire pumps shall be fitted on the discharge side with a relief valve and a pressure gage to indicate the pressure on the fire main. Except when the fire pumps are being used in tank cleaning operations, the relief valves shall be set to relieve at 25 pounds higher than the pressure necessary to maintain the requirements of § 34.2-2 (b) of this part. If the fire pumps operating under shut-off conditions are not capable of producing a pressure exceeding 125 pounds p. s. i., the relief valves may be omitted (9 F.R. 6891, June 21, 1944).

###### PART 37—SPECIFICATIONS FOR LIFESAVING APPLIANCES

Section 37.1-4 (f) is amended by the addition of the following sentence:

§ 37.1-4 *Lifeboat davits—TB/ALL.* \* \* \*

(f) \* \* \* For each reduction of 0.01 percent below the maximum specified carbon content, an increase of 0.04 percent manganese above the specified maximum will be permitted up to a maximum of 1.00 percent (9 F.R. 5997, June 2, 1944).

###### SUBCHAPTER E—LOAD LINES

###### PART 48—FOREIGN VOYAGES DURING THE NATIONAL EMERGENCY

Part 48 is amended by the addition of the following new section:

§ 48.5a *Load line markings.* (a) In the case of a vessel marked (as in Figure B1, § 44.3) with Great Lakes markings aft of the diamond and emergency coastwise or special service markings forward of the diamond, and if this vessel is also furnished with a certificate on the international form, before the vessel may enter the foreign trade all Great Lakes and emergency coastwise or special service

markings shall be painted out and the vessel shall show only markings in accordance with the international form as determined by Part 43.

(b) In the case of a vessel marked (as in Figure B2, § 44.3) with special service or emergency coastwise markings (other than timber) aft of the disc, and if this vessel is also furnished with a certificate on the international form, before the vessel may enter the foreign trade the load line markings shall be painted out so that only international load lines with the appropriate disc are shown.

(c) In the case of a timber vessel entering the foreign trade, only the international timber load lines aft of the disc and the international load lines forward of the disc shall be displayed (as in Figure 4, § 43.78) (9 F.R. 6981, June 21, 1944).

##### SUBCHAPTER G—GENERAL RULES AND REGULATIONS FOR VESSEL INSPECTION, OCEAN AND COASTWISE

###### PART 59—BOATS, RAFTS, BULKHEADS, AND LIFESAVING APPLIANCES (OCEAN)

Section 59.3 (1) is amended by the addition of the following sentence to immediately follow the table:

§ 59.3 *Strength and operation of davits.* \* \* \*

(1) \* \* \*

For each reduction of 0.01 percent below the maximum specified carbon content, an increase of 0.04 percent manganese above the specified maximum will be permitted up to a maximum of 1.00 percent (9 F.R. 5997, June 2, 1944).

###### PART 60—BOATS, RAFTS, BULKHEADS, AND LIFESAVING APPLIANCES (COASTWISE)

Section 60.21 is amended in the 9th undesignated paragraph on "Chemical composition of castings intended to be fabricated by fusion welding" by the addition of the following sentence to immediately follow the table:

§ 60.21 *How lifeboats shall be carried; davits and cranes required.* \* \* \*

For each reduction of 0.01 percent

below the maximum specified carbon content, an increase of 0.04 percent manganese above the specified maximum will be permitted up to a maximum 1.00 percent (9 F.R. 5997, June 2, 1944).

###### PART 61—FIRE APPARATUS; FIRE PREVENTION

Section 61.5 (b) (5) is deleted and the following is substituted instead:

§ 61.5 *Steam fire pumps or their equivalent.* \* \* \*

(b) *Fire pumps on steam vessels contracted for on or after 1 July, 1935.* \* \* \*

(5) Fire pumps shall be fitted on the discharge side with relief valves set to relieve at 25 pounds higher than the pressure necessary to maintain the requirements of paragraph (b) (2) (i), above, and a pressure gage to indicate the pressure on the fire main. If the fire pumps operating under shut-off conditions are not capable of producing a pressure exceeding 125 pounds p. s. i., the relief valve may be omitted (9 F.R. 6981, June 21, 1944).

##### SUBCHAPTER H—GENERAL RULES AND REGULATIONS FOR VESSEL INSPECTION, GREAT LAKES

###### PART 76—BOATS, RAFTS, BULKHEADS, AND LIFESAVING APPLIANCES

Section 76.15 is amended in the 9th undesignated paragraph on "Chemical composition of castings intended to be fabricated by fusion welding" by the addition of the following sentence to immediately follow the table:

§ 76.15 *How lifeboats shall be carried; davits and cranes required.* \* \* \*

For each reduction of 0.01 percent below the maximum specified carbon content, an increase of 0.04 percent manganese above the specified maximum will be permitted up to a maximum of 1.00 percent (9 F.R. 5997, June 2, 1944).

###### PART 77—FIRE APPARATUS; FIRE PREVENTION

Section 77.5 (b) (5) is deleted and the following is substituted instead:

§ 77.5 *Steam fire pumps or their equivalent.* \* \* \*

(b) *Fire pumps on steam vessels contracted for on or after 1 July, 1935.* \* \* \*

(See § 61.5 of this chapter, which is identical with this section) (9 F. R. 6981, June 21, 1944.)

#### SUBCHAPTER I—BAYS, SOUNDS, AND LAKES OTHER THAN THE GREAT LAKES: GENERAL RULES AND REGULATIONS

##### PART 94—BOATS, RAFTS, BULKHEADS, AND LIFESAVING APPLIANCES

Section 94.14 is amended in the 9th undesignated paragraph of "Chemical composition of castings intended to be fabricated by fusion welding" by the addition of the following sentence to immediately follow the table:

§ 94.14 *How lifeboats shall be carried; davits and cranes required.* \* \* \*

For each reduction of 0.01 percent below the maximum specified carbon content, an increase of 0.04 percent manganese above the specified maximum will be permitted up to a maximum of 1.00 percent (9 F. R. 5997, June 2, 1944).

##### PART 95—FIRE APPARATUS; FIRE PREVENTION

Section 95.5 (b) (5) is deleted and the following is substituted instead:

§ 95.5 *Steam fire pumps or their equivalent.* \* \* \*

(b) *Fire pumps on steam vessels contracted for on or after 1 July 1935.* \* \* \*

(See § 61.5 of this chapter, which is identical with this section) (9 F. R. 6981, June 21, 1944.)

#### SUBCHAPTER J—GENERAL RULES AND REGULATIONS FOR VESSEL INSPECTION, RIVERS

##### PART 113—BOATS, RAFTS, BULKHEADS, AND LIFESAVING APPLIANCES

Section 113.23 is amended in the 9th undesignated paragraph on "Chemical composition of castings intended to be fabricated by fusion welding" by the addition of the following sentence to immediately follow the table:

§ 113.23 *How lifeboats shall be carried; davits and cranes required.* \* \* \*

For each reduction of 0.01 percent below the maximum specified carbon content, an increase of 0.04 percent manganese above the specified maximum will be permitted up to a maximum of 1.00 percent (9 F. R. 5997, June 2, 1944).

##### PART 114—FIRE APPARATUS; FIRE PREVENTION

Section 114.7 (b) (5) is deleted and the following is substituted instead:

§ 114.7 *Steam fire pumps or their equivalent.* \* \* \*

(b) *Fire pumps on steam vessels contracted for on or after 1 July, 1935.* \* \* \*

(See § 61.5 of this chapter, which is identical with this section) (9 F. R. 6891, June 21, 1944.)

##### PART 136—"A" MARINE INVESTIGATION BOARD RULES

##### TEMPORARY WARTIME RULES GOVERNING INVESTIGATIONS OF ACCIDENTS AND CASUALTIES

By virtue of the authority vested in me by R.S. 4450 as amended (46 U.S.C. 239) and Executive Order No. 9083 (7 F.R. 1609), § 136.107 of the Temporary Wartime Rules Governing Investigations of Accidents and Casualties is amended to read as follows:

§ 136.107 *Appeal.* (a) Any person whose license or certificate of service or efficiency is revoked or suspended may, within thirty (30) days after the decision of the hearing officer, take an appeal to the District Coast Guard Officer of the district in which the hearing was held. Every appeal shall be typewritten or written in a legible hand and shall set forth as briefly as possible the name of the appellant, the nature of the charge, the name of the hearing officer who made the decision, the substance of the decision, and a statement of each separate ground for such appeal.

(b) The District Coast Guard Officer on appeal may alter or modify any finding of the hearing officer and may affirm, reverse, or modify the decision of the hearing officer, or remand the case for further hearing, or, if in his opinion, the appeal raises questions of general interest or importance or of special complexity or novelty, may, prior to decision, transmit the appeal and a complete transcript of the record in the case to the Commandant for decision. The District Coast Guard Officer, or the Commandant, will not consider evidence which is not a part of the record of the hearing and will not consider any ground of appeal which is not specified by the appellant. The decision of the District Coast Guard Officer or the Commandant on appeal will be in writing and will contain his findings

and conclusions. The findings, conclusions and decision of the Commandant, and in the absence of appeal to the Commandant as provided in paragraph (c) of this section the findings, conclusions and decision of the District Coast Guard Officer shall be final and shall be binding on the parties for all purposes.

(c) In any case in which the District Coast Guard Officer affirms or modifies an order of the hearing officer revoking or suspending a license or certificate of service or efficiency and such action results in the revocation or suspension of the license or certificate without probation (thus prohibiting the person concerned from engaging in his occupation under such revoked or suspended license or certificate), the person concerned may, within thirty (30) days after the decision of the District Coast Guard Officer take an appeal to the Commandant by filing a notice of appeal with the District Coast Guard Officer. Such notice of appeal shall be typewritten or written in a legible hand, shall be addressed to the Commandant and shall set forth as briefly as possible the name of the appellant, the nature of the charge, the substance of the decisions of the hearing officer and the District Coast Guard Officer and a statement of each separate ground for such appeal. The appellant may file a brief or memorandum with his notice of appeal in elaboration of the matters therein set forth. The District Coast Guard Officer shall immediately transmit such notice of appeal and brief, if any, to the Commandant together with a complete transcript of the record in the case.

(d) The Commandant on appeal may alter or modify any finding of the District Coast Guard Officer or of the hearing officer and may affirm, reverse, or modify the decision of the District Coast Guard Officer or remand the case for further hearing. The Commandant will not consider evidence which is not a part of the record of the hearing and will not consider any ground of appeal which is not specified by the appellant. The decision of the Commandant on appeal will be in writing and will contain his findings and conclusions. The decision of the Commandant on appeal shall be final and shall be binding on the parties for all purposes.

(e) A complete transcript of the record shall be made available to any person whose license or certificate is revoked or suspended for the purpose of taking an appeal pursuant to the provisions of this section.

(f) Any person whose license or certificate is revoked or suspended by a hearing officer and who intends to appeal to the District Coast Guard Officer may file with the hearing officer or with the District Coast Guard Officer a request for a temporary license or certificate valid during the pendency of the appeal. Such temporary license or certificate may be issued in the discretion of the hearing officer or of the District Coast Guard Officer. Each such temporary license or certificate shall contain such terms and conditions as the issuing officer may prescribe and shall contain a definite expiration date fixed by the issuing officer, which date, however, may be extended from time to time by the issuing officer.

(g) Any person entitled to, and intending to appeal to the Commandant from a decision of the District Coast Guard Officer may file with the District Coast Guard Officer a request for a temporary license or certificate valid during the pendency of the appeal. Such temporary license or certificate may be issued in the discretion of the District Coast Guard Officer and shall contain such terms and conditions as he may prescribe, including a definite expiration date, which date, however, may be extended from time to time (9 F. R. 6777, June 17, 1944).

#### SUBCHAPTER P—GENERAL PROVISIONS

##### PART 180—ENFORCEMENT

###### REPORTS OF VIOLATIONS

Section 180.1 of Title 46, CFR, Chapter I, Subchapter P, Part 180, is hereby amended to read as follows:

§ 180.1 *Reports of violations.* Reports of violations of navigation laws and regulations administered and enforced by the Coast Guard shall be submitted to the District Coast Guard Officer having jurisdiction over the area in which the violations occurred. The person charged with a violation shall be notified of the receipt of the report of violation and of his opportunity to make a statement to the appropriate officer denying the existence of a violation or applying for administrative relief by way of remission or mitigation. If a person fails

to file a timely statement, he shall be assessed the full amount of the statutory penalties involved. Any mitigation of the statutory penalties shall be conditional upon payment of the penalties as mitigated within the period specified in the letter advising of the mitigation. Where any amount due has not been paid within the prescribed period, the case will be referred to an appropriate United States Attorney for court action. (R. S. 161, sec. 5, 40 Stat. 602 as amended; 5 U. S. C. 22, 46 U. S. C. 288; E. O. 9083, 7 F. R. 1609) (9 F. R. 6833, June 20, 1944.)

## Marine Inspection Memorandum

No. 74

### Procedure for Handling Violations of Navigational Laws and Regulations and Collection of Penalties

UNITED STATES COAST GUARD,  
Washington, D. C., 15 June 1944.

Ref.: (a) Letter, Commandant to All DCGO's, 27 July, 1942 (File CG-CO-621, 119, 426)

1. Reference (a), Part IV, prescribed the procedure for handling reported violations of navigation laws and regulations.

2. Headquarters has determined that the alleged offender shall have a complete opportunity to present his side of the matter before any action is taken to require a deposit or assess a penalty.

The annexed procedure provides: (1) The Coast Guard will in the first instance merely advise the alleged offender that a report of a violation has been received. (2) Within 30 days he may file a statement, either denying liability or applying for administrative relief. Thus he is provided with an opportunity to enter a written denial. If he so requests he may obtain a personal interview with a Coast Guard official. If he applies for relief he may do so without filing a deposit. To save an extra procedural step, a statement denying liability will be treated in the alternative as an application for administrative relief, if it is determined that the person is liable. (3) However the mitigation, when and if granted, will be conditional upon payment of the penalty as mitigated, within 30 days. If the penalty, as mitigated, is not

paid, the mitigation is of no effect and the assessment of the full penalty becomes effective. (4) If the penalty, as mitigated, exceeds \$50, the offender has a right of appeal to the Commandant.

The attached procedure involves the use of several new forms and, in addition to the principal changes outlined above, contains various other changes in procedure.

3. Upon receipt of this memorandum the annexed procedure should be applied to all future cases, i. e., cases where no notice has been sent to the alleged offender, and to all pending cases where a notice of liability has already been sent, and the time period for filing an application and deposit has not expired. In such cases an appropriate letter may be sent to the alleged offender explaining that there has been a change of procedure. If a deposit has been received, or if a deposit is received during the period of transition, the procedure in reference (a) shall be followed, but consideration shall be given to the principles stated in the annexed procedure. If the offender is in default through failure to make a deposit and file an application, within the prescribed period, reference (a) shall be followed. An amendment to Section 180.1 of Title 46 CFR is attached hereto.

4. The District Coast Guard Officers will prepare copies of the new forms for use in connection with the attached procedure pending receipt of a supply of the forms from Headquarters.

(S) R. R. WAESCHE,  
Commandant.  
15 June 1944.

### PROCEDURE FOR HANDLING AND DISPOSITION OF REPORTED VIOLATIONS OF NAVIGATION LAWS AND REGULATIONS ADMINISTERED AND ENFORCED BY THE UNITED STATES COAST GUARD AND FOR THE COLLECTION OF PENALTIES ASSESSED AS A RESULT OF SUCH VIOLATIONS

1. *Violation Report.* Violations of all navigation laws and regulations, the administration and enforcement of which are vested in the United States Coast Guard shall be detected and reported by the officers and employees charged with responsibility therefor in the same manner as heretofore. Such reports shall be made in duplicate on the form "Report of

Violation," (NCG 2636). The original copy of such report shall be submitted to the District Coast Guard Officer and the other copy retained in the local office to which the reporting officer is attached.

The procedure for handling minor violations will be supplemented shortly by provision for the issuance by the boarding officer on the spot of notifications, or "tickets," requiring a report by the offender of a satisfactory correction of the violation.

**2. Notice of Report of Violation.** Every report of violation shall be referred to the Marine Inspection Officer. If the facts stated in the report are not sufficient to establish a *prima facie* case of violation, the case should be closed without further action. If appropriate the case should be closed without further action. If appropriate, the case should be returned to the reporting officer for further investigation or report. If the report is sufficient to establish a *prima facie* case of violation, but it appears at the outset that the case is one which should be handled by a mere letter of warning, a letter of warning shall be prepared in duplicate and, after initialing by the Marine Inspection Officer and the Law Officer, shall be forwarded for signature to the District Coast Guard Officer.

In all other cases, the Marine Inspection Officer shall prepare in duplicate a Notice of Report of Violation, using Form NAVCG 2767, for the signature of the District Coast Guard Officer. Care shall be taken to assure that the letter bears as its date the date of mailing, in view of the fact that the 30-day period available to the offender for preparing a statement begins from the date shown on the letter. The original shall be mailed to the alleged offender. The duplicate copy shall be put in the case file. An Application for Relief from Penalties for Violation of Navigation Laws and Regulations, Form NAVCG 2767A, with the blank spaces in the heading and first paragraph filled in, should be enclosed with the original notice of violation.

Upon application, and where the circumstances warrant, the District Coast Guard Officer may extend for a reasonable time, which should not be prolonged, the 30-day period for filing a written statement or an application for relief from penalties.

In those cases where a master (or

any other officer or any member of the crew) of a vessel has been reported for a violation, the District Coast Guard Officer shall mail an additional copy of the notice of report of violation to the owner of such vessel. When it is known that the master is employed by a person or agency other than such owner, this additional copy shall be sent to such employer. This notice should indicate that if the master, etc., is absent by reason of being on a foreign voyage and if his absence is bound to extend beyond the thirty-day period during which written statements or applications for remission or mitigation normally must be submitted, the owner of the vessel, on behalf of the master, should certify this fact to the District Coast Guard Officer in order that extension of the time limit may be authorized.

**3. Written Statement Denying Liability.** If the alleged offender files a written statement denying liability, the facts alleged therein shall be considered. Generally, arrangements should be made for a personal interview, if requested, unless the written statement indicates that the case should be closed. It generally will be appropriate for the interview to be conducted by a member of the staff of the Marine Inspection Officer or Law Officer. (A member of the staff of an Officer in Charge, Marine Inspection, may be particularly appropriate where the alleged offender is located much closer to a Marine Inspection Office than to the District Office. In that event the case file shall be forwarded to the Marine Inspection Office involved and returned, following the interview, to the District Office.) It must be emphasized that this personal interview is strictly informal and is not a hearing and should not be referred to as such. No stenographic transcript shall be made. The person conducting the interview shall prepare a memorandum containing his recommendations as well as the substance of the matters presented by the person charged. That memorandum shall be put in the case file.

**4. Determination of Mitigation or Other Action.** Upon the basis of the case file as supplemented by the written statement and memorandum of personal interview, if any, the Marine Inspection Officer shall determine, in consultation with the Law Officer, what further steps should be taken.

If it is determined that the *prima facie* case of violation has been satisfactorily explained away by the person involved, an appropriate letter advising him that the case is being closed shall be prepared. It may be appropriate to return the case to the appropriate officer for further investigation and report.

If the case file indicates that there has been a violation, there shall be prepared and, after initialing by the Marine Inspection Officer and the Law Officer, forwarded for the signature of the District Coast Guard Officer, either:

(1) A letter of warning or letter of remission of penalties which will advise the offender that the case is closed. This will be prepared in duplicate.

(2) An "Assessment of Penalties for Violation of Navigation Laws and Regulations, and Conditional Mitigation of Penalties" (Form NAVCG 2767B). This will be prepared in triplicate. Care shall be taken, in preparing Form 2767B, to indicate whether the assessment is against "you," (the addressee), which is appropriate where the statute places the liability upon a person (owner, master, etc.), or against "the above-named vessel," which is appropriate where the statute places the liability upon the vessel itself. The inappropriate term shall be stricken from the form letter.

(3) If the circumstances are such that it is determined to assess the full penalty an appropriate letter making the assessment, advising the offender of the fact that consideration was given to his statement, and advising him of his right of appeal, shall be prepared in duplicate.

The determination of the appropriate action, whether to dispose of the case by letter of warning or to mitigate the penalty, and if so to what amount, etc., shall be made with care and shall not be left to routine or clerical personnel. This determination calls for the exercise of good judgment and is of fundamental importance to sound administration, in achieving the real compliance desired by the Coast Guard without unnecessary friction. Consideration shall be given to the prior record of the offender, as disclosed by the name file, to the nature of the violation, the degree of culpability involved, the likely

effect of the violation upon enforcement generally, and any other relevant factors. Greater leniency may appropriately be shown to first offenders. A warning letter will normally be sufficient for technical violations unless they have been persisted in, notwithstanding other warnings. On the other hand recurrent offenders require firmer treatment. Personal interviews with the companies involved by responsible, senior officers can be a valuable adjunct to formal proceedings in obtaining compliance. The District Coast Guard Officers shall take steps to assure that sound judgment is exercised.

The application for administrative relief may be informal, and need not be filed on Form NAVCG 2767A. As indicated in Form NAVCG 2767, the written statement, which contains all the facts concerning the alleged violation, will be treated as an application for administrative relief in the event that the person is deemed liable, even though the statement is one expressly denying any liability. If the offender stated that his statement should not be treated as an application for administrative relief, he should be notified that the District Coast Guard Officer has determined that there was a violation, as stated in the original notice, and that the offender must file an application for administrative relief within 30 days to avoid assessment of the full penalty.

The District Coast Guard Officer shall review the determination prepared for his signature, and if he agrees with the decision reached and with the amount of mitigation, shall sign the letter of warning or remission, or the assessment of penalties and conditional mitigation. The offender shall be sent the original, in case of the letter of warning or remission. He shall be sent the original and one copy in case of the assessment of penalties and conditional mitigation, one of which will be returned when he makes remittance. In either case, one copy shall be retained in the case file. The letter should bear as its date the date of mailing.

**5. Failure to File a Statement or Application.** If the offender does not file, within 30 days of the date of the notice of report of violation (NAVCG 2767), or any extension granted by the District Coast Guard Officer, a written statement denying liability or apply-

ing for administrative relief, the District Coast Guard Officer shall make an assessment of the full penalties, without any provision for mitigation thereof. Care shall be taken in preparing this letter, Form 2767C, to strike out the inappropriate term and thus indicate whether the assessment is against "you" (where the statutory liability rests upon a person), or is against "the above named vessel." The original and one copy (to be returned with the remittance) shall be sent to the offender. One copy shall be put in the case file.

**6. Criminal Cases.** All of the foregoing procedure is subject to an exception if it is determined upon consultation with the Law Officer that there is a prima facie case of violation of any criminal statute. In such case, the District Coast Guard Officer shall promptly refer the entire case to the proper United States Attorney, notifying Headquarters and supplying as full information as the circumstances permit. No action in any such case shall be taken thereafter without prior consultation with the United States Attorney. Violations of R. S. 4417 (a) (46 U. S. C. 391 (a)), in the case of tank vessels, and violation of Sec. 37, Shipping Act, 1916 (46 U. S. C. 835) shall be referred by the District Coast Guard Officer to Headquarters for transmission to the Attorney General and shall not be referred to the United States Attorney directly.

**7. Assignment of Case Number.** At the time the violation report is received, a number shall be assigned to the case. Thereafter the case number shall be referred to in all reports and correspondence pertaining to such case. Case numbers shall consist of two parts; a district identification number which shall be that assigned for the district in the Budget and Accounting Codes Manual, and a serial number. Serial numbers shall continue to be assigned in numerical sequence.

**8. Establishment and Maintenance of Case Records.** To afford a ready means of reference, a file of cases by name and number shall be maintained in each District Coast Guard Office. A "Case Folder" (NAVCG 2767D) will be used as the number file for each case. Form NCG 2636H will be employed until the existing stock of that form is used up. Items on that form relating to deposits will be

disregarded. Appropriate items will be written in for entries relating to steps taken under the new procedure provided by this directive; i. e., statement of offender received; memorandum of personal interview received; assessment of penalty and amount of conditional mitigation; appeal to Headquarters and disposition of appeal, etc. Each stage in the history of the case shall be noted on the cover of the folder and all correspondence and other papers relating to the case shall be kept in the folder. The name file shall be kept on a 3 x 5 card on which shall be entered notations of each violation committed by a violator with appropriate cross-references to specific cases in the number of files. In order to expedite the preparation of statistical reports, it is suggested that closed case files be kept separate from those that are pending.

**9. Receipt of Payment of Mitigated Penalty.** Payments of assessment, either in full or as mitigated, shall be delivered to the Disbursing Officer who shall prepare four copies of a "Disbursing Officer's Receipt—(Navigation Fine)" (NAVCG 2767E). (Form NCG 2636C will be employed until the existing stock of that form is used up. The remittance will in all cases be acknowledged on that form as a "payment in full, in accordance with the terms of letter of assessment"). The Disbursing Officer shall forward the original, and a copy for the case file, of this receipt to the Marine Inspection Officer together with any additional correspondence from the offender. Funds thus received shall be handled by the Disbursing Officer as provided for penalties finally assessed and not remitted. (See Finance and Supply Circular 107-42.) The District Coast Guard Officer shall endorse on the reverse of the receipt a statement that the amount paid is in full satisfaction of the penalty assessed (or of the penalty assessed, as mitigated), and shall then mail the endorsed original of the receipt to the offender.

**10. Collection of Penalties, and Referral to United States Attorney.** In those instances where the offender has not made payment of the amount due within 30 days of the date of the assessment letter, whether the assessment was conditionally mitigated or not, the file (except for the case folder) should be referred by the Dis-

trict Coast Guard Officer to the proper United States Attorney.

However, the case should be referred to Headquarters, for review by Headquarters and by the Attorney General before referral to the United States Attorney, where the right to enforce the penalties is doubtful, or where it is a test case the outcome of which will affect the liability of a number of persons or which will require a change of practice by a group of people.

If the District Coast Guard Officer is of the opinion that notwithstanding the previous procedure and steps taken by the Coast Guard the matter is one which should not be referred to the United States Attorney for collection, he may request authority of Headquarters to close the case, stating the facts of the matter and the reasons why he considers such action advisable. In view of the consideration given to the matter by Coast Guard officers at earlier stages of the procedure, such a request should be made to Headquarters only in exceptional cases.

The District Coast Guard Officer shall follow through on the collection of assessed penalties. He shall keep a day to day check on bills rendered and paid and shall refer all overdue accounts to the appropriate United States Attorney. After the case has been so referred, the District Coast Guard Officer shall make periodic checks on the progress of the case and shall assist in every way possible in making the collection.

**11. Petition for Reconsideration.** A petition for reconsideration of an assessment may be considered by the District Coast Guard Officer if the equities of the case so indicate, and the petition is filed within 30 days of the date of the issuance of the letter of assessment. Petitions filed beyond the 30-day period shall be denied, except that in extraordinary circumstances, if the District Coast Guard Officer believes that a denial would adversely affect the interests of the Coast Guard he may refer the petition to Headquarters.

**12. Appeal to Headquarters.** If the alleged offender filed a statement following receipt of report of notice of violation, and the amount to be collected (i. e. the assessment as mitigated conditionally) exceeds \$50, he may appeal to the Commandant. That appeal will be filed with the Dis-

trict Coast Guard Officer who will transmit to Headquarters the appeal, including any briefs, together with the case file (except for the case folder) and any supplementary memorandum or comment the District Coast Guard Officer may wish to make. At Headquarters, the Chief, Merchant Marine Inspection Division will prepare a decision on appeal and route it via the Chief Counsel and Chief Operations Officer to the Commandant for signature. The decision on appeal may affirm or modify the assessment (by a letter similar to Form NAVCG 2767B with appropriate adaptations), or it may remit the fine entirely. Any mitigation of the assessment, whether a modification or affirmation of the action of the District Coast Guard Officer, shall be conditional upon making payment to the District Coast Guard Officer within 30 days. The original of the action on appeal (the original and a copy where the action continues an assessment in effect) shall be sent directly to the person charged. A copy shall be put in the case file and shall be sent immediately to the District Coast Guard Officer for use in connection with further steps in the matter, receiving payment or referring the case to the United States Attorney.

**13. Consultation between Marine Inspection and Law Officers.** This memorandum provides in various places for review by both the Marine Inspection Officer and the Law Officer (or in the case of Headquarters, Chief, Merchant Marine Inspection Division and the Chief Counsel), and for consultation between these officers. The Marine Inspection Officer, or Chief, Merchant Marine Inspection Division, as the case may be, is primarily responsible for recommendations as to the policy and administrative aspects of the determination of the action to be taken by the Coast Guard, including the reaching of a judgment as to the guilt of the alleged offender, the seriousness of the offense, the proper action to be taken. The Law Officer, or the Chief Counsel, as the case may be, is primarily responsible for recommendations as to the legal aspects of the case, the interpretations of statutes and regulations, the existence of sufficient evidence for a *prima facie* court case, etc. The Law Officer and Chief Counsel shall prepare or review all reports to the United States Attorney, or Attorney-General, re-

spectively, and in general shall handle or make provision for contacts with the Department of Justice.

**14. Reports to Headquarters.** At the beginning of each quarter, each District Coast Guard Officer shall submit to Headquarters in duplicate a report on activity during the previous quarter with respect to the handling and disposition of violation reports. Form NAVCG 2767F shall be used for this purpose. Disbursing officers receiving collections on account of navigation fines will render accounts in the prescribed manner.

(S) R. R. WAESCHE,  
Commandant.

## Navigation and Vessel Inspection Circular No. 48

Recommendations for repairing lifeboats and life rafts after encounters with hostile aircraft, submarines, or surface vessels.

UNITED STATES COAST GUARD,  
Washington, D. C., 17 June 1944.

1. The regulations in §§ 153.6, 153.6a, 153.7, and 153.7a in Subchapter O, Title 46, C. F. R., require that not less than 25 softwood plugs, 3 inches long, tapered round from  $\frac{1}{4}$  to  $\frac{3}{4}$  inches in diameter, contained in a canvas bag, be carried on all lifeboats and life rafts on ocean and coastwise vessels. The canvas bag should be plainly marked with indelible print "WOODEN BULLET-HOLE PLUGS." This bag should be secured in the lifeboat or life raft so that it will not float out in the event the boat or raft is flooded. Two or three pounds of clean rags should also be provided for use with the plugs.

2. In addition to the wooden bullet-hole plugs, it is also recommended that supplementary materials be provided for the purpose of making temporary repairs. The repair items for lifeboats should include: 24 toggle bolts  $\frac{3}{16}$  by 2 or 3 inches long with leather or rubber washers; 24 stove bolts and nuts with leather or rubber washers; 3 balls of candlewicking; 2 pounds of white lead in oil; 3 pieces of sheet lead  $\frac{1}{16}$  inch thick, 8 inches long by 4 inches wide; 3 square feet of waterproof adhesive tape; and a  $\frac{1}{2}$  inch tapered reamer square tool steel with T handle. Sketches are attached which illustrate this material.

3. The types of life rafts approved

on and after 15 March 1943, should be provided with the same repair items recommended for lifeboats. The repair items for the types of life rafts approved prior to 15 March 1943, in addition to the plugs, should include at least a roll of waterproof adhesive tape and, if possible, the other supplementary materials suggested for lifeboats.

4. After an encounter with the enemy, the lifeboats, life rafts, air tanks or flotation chambers, water breakers, distress lights, signal pistol containers, lanterns, illuminating oil and sea oil containers, flashlights, and batteries should be examined for possible damage, and all such damage should be repaired immediately. The repairs to the lifeboat hulls, life rafts, and their air tanks should be made first in case it should become necessary to abandon ship in a hurry. All damaged lifeboat and life raft equipment should then be repaired, or replaced ready for service. Particular attention should be directed toward maintaining the watertight integrity of water containers. Individual water containers (hermetically sealed cans of water) are considered superior to bulk containers.

5. The softwood tapered plugs may be driven into bullet holes in the shell plating or planking of a lifeboat or may be used to plug holes in the air tanks. Bullet holes may also be sealed by using bolts with nuts, and leather or rubber washers. Damaged parts of the hull plating may be repaired by bolting patches of sheet lead over the affected area. The toggle bolts will be serviceable in effecting closure of holes by inserting the toggle into the hole and then tightening the rubber or leather washer against the shell by means of the metal washer and wing nut. The hand reaming tool may be used to fair holes for insertion of the toggle.

6. The person in charge of each boat and raft should see to the making of such repairs and replacements as may be necessary to maintain the seaworthiness of his lifeboat or raft. A copy of this circular should be kept aboard each lifeboat and raft.

7. This circular supersedes and rescinds Bureau Memorandum No. 430 of 2 January 1942, issued by the former Bureau of Marine Inspection and Navigation.

(S) R. R. WAESCHE,  
Commandant.

## Equipment Approved by the Commandant

### BUOYANT CUSHION

15' x 15' x 2' Typha filled buoyant cushion, Approval No. B-223; manufactured by W. H. Temme & Co., 827-831 Madison Street, Oak Park, Ill. (For use on motorboats of Classes A, 1, and 2 not carrying passengers for hire, for the duration of the National Emergency and six months thereafter) (9 F. R. 6892, June 21, 1944).

### DAVIT

Barclay Gravity Davit, Type A-1 (Assembly Dwg. No. 565-E, Rev. 6, dated October 12, 1943). (Maximum working load of 15,010 pounds per set—7,505 pounds per arm), submitted by the Landley Company, Inc., 15 Park Row, New York, N. Y. (9 F. R. 6892, June 21, 1944).

### DISENGAGING APPARATUS FOR LIFEBOATS

Rottmer type releasing gear, Model R2 (Assembly Dwg. No. S-82-1-35, dated 18 May, 1944). (Maximum working load of 9,500 pounds per hook, 19,000 pounds per set), submitted by the Imperial Lifeboat & Davit Co., Inc., Athens, New York (9 F. R. 6384, June 10, 1944).

### FEEDWATER REGULATOR

Copes Type "P" (Thermostat) boiler feedwater regulator (Dwgs. Nos. 23242-XL-1, 23187-L, 23186-S, 23188-L, 23240-NKL-2, and 23241-XL-2), manufactured by Northern Equipment Company, Erie, Pa. (9 F. R. 7119, June 27, 1944).

### FIRE-RETARDANT MATERIAL

Insulpray; plaster (Insulant for Class A-1 construction in conjunction with an approved Class B panel), 1½" thickness—12 lbs. per cu. ft. density; 2" thickness—8 lbs. per cu. ft. density, submitted by Sprayed Insulations, Inc., Montclair, New Jersey (9 F. R. 6892, June 21, 1944).

### FIRING ATTACHMENT

Firing attachment for Lyle gun (Dwg. F-100, dated 15 March, 1944), submitted by the Naval Company, 3419 Richmond Street, Philadelphia, Pa. (9 F. R. 7119, June 27, 1944).

### FIRST-AID KIT

24-unit first-aid kit, Type 63, submitted by the Hoyt Metal Works, Ltd., 63 Hoyt Street, Newark, N. J. (9 F. R. 6486, June 13, 1944).

### LIFEBOATS

24' x 8' x 3'8¾" metallic oar-propelled (Coast Guard built-in-tank type) lifeboat (436 cu. ft.) (General Arrangement Dwg. No. 5US-935-1, Rev. 1, dated 24 May, 1944), submitted by the Globe American Corp., Kokomo, Ind. (9 F. R. 6384, June 10, 1944).

24' x 8' x 3'8¾" metallic motor-propelled (Coast Guard built-in-tank type) lifeboat (436 cu. ft. gross) (General Arrangement Dwg. No. 5US-934-1, Rev. 1, dated 24 May, 1944), submitted by the Globe American Corp., Kokomo, Ind.

NOTE: These listings supersede listings pertaining to these lifeboats, 9 F. R. 5696, published in F. R. 26 May 1944. (9 F. R. 6384, June 10, 1944).

24' x 7' x 3' metallic oar-propelled lifeboat (802 cu. ft. capacity) (General Arrangement Dwg. No. G-338, revised 25 April, 1944), manufactured by C. C. Galbraith & Son, Inc., 99 Park Place, New York, N. Y. (9 F. R. 6486, June 13, 1944).

### LIFE PRESERVER LIGHT

Life preserver light, Model No. 2 (Dwg. C-0004, revised 6-16-44), submitted by William M. Lennan, Inc., 2654 Fletcher Drive, Los Angeles, Calif. (9 F. R. 7119, June 27, 1944).

### LIFE RAFTS

20-person improved type life raft (Dwg. No. B-3-A dated 12 May, 1944), submitted by Blaircraft, 3355 N. E. 73d St., Portland, Oregon (9 F. R. 6892, June 21, 1944).

24-person improved type metallic life raft, model #6 (Dwg. No. 1761, dated 23 May, 1944), submitted by L. A. Young Spring & Wire Co., 900 High Street, Oakland, California (9 F. R. 6892, June 21, 1944).

20-person improved type, aluminum-plywood life raft (Arrangement and Details Dwg. No. R-205-X, dated 26 February, 1944, revised). (9 F. R. 5997, June 2, 1944).

### LINE-THROWING GUN

2½" line-throwing gun, Model "F-B" short barrel (Dwg. No. M-108-B, dated 27 April, 1944), submitted by the Naval Company, 3419 Richmond Street, Philadelphia, Pa. (9 F. R. 6384, June 10, 1944).

### LUMINOUS CLOTH OR TAPE FOR MARKING INTERIOR ACCOMMODATIONS, ETC.

Luminous tape, Everglow Type "A," with adhesive attached, submitted by the Hall-Vesole Company, 2350 University Avenue, St. Paul, Minnesota (9 F. R. 6486, June 13, 1944).

#### OIL CLEANSING SOLUTION

Oil cleansing solution, designated "Bon-Gre," submitted by the Heinicke-Moser Chemical Co., Inc., 207 East 84th St., New York, N. Y. (9 F. R. 6384, June 10, 1944).

#### PORTABLE ELECTRIC MEGAPHONE

Portable electric megaphone unit (Dwgs. H-21, dated 8-25-43; D-31, dated 4-19-44; and ES-36, dated 3-9-44), submitted by the Powers Electronic and Communication Company, Glen Cove, N. Y. (9 F. R. 7119, June 27, 1944).

#### SEA ANCHORS

Sea anchor, Type 3 x 6 (U. S. Coast Guard Specification and Dwg. No. MMI-562, dated 1 November, 1943), submitted by Paul W. Olson, Sailmaker, San Pedro, Calif. (9 F. R. 6384, June 10, 1944).

Type A-1 sea anchor (Coast Guard Dwg. MMI-562 and specification dated 1 November, 1943), submitted by the Atlas Marine Supply Company, 264 West Seventh St., San Pedro, Calif. (9 F. R. 6892, June 21, 1944).

Sea anchor, Type 2-A (U. S. Coast Guard Dwg. No. MMI-562, and specification dated 1 November, 1943), submitted by Eveready Canvas Corp., 20 Fulton St., New York, N. Y. (9 F. R. 7119, June 27, 1944).

#### TELEPHONE SYSTEM

Sound Powered Telephone Equipment (Dwg. Nos. ASP-200, Alt. 3, dated 1 Dec. 1943, CSP-201, Alt. 3, dated 3 Dec. 1943; and WTB-202/WTP-203, Alt. 3, dated 10 Dec. 1943), manufactured by Alwin Products Corp., 161 Van Wagenen Ave., Jersey City, N. J. (9 F. R. 6486, June 13, 1944).

#### WINCH

Lifeboat winch for Gravity Davits, Type BSH-10 (Dwg. Nos. 1172-D, Rev. dated March 8, 1944, and 1173-D, dated March 7, 1944) (Approved for 15,500 pounds at the drums—7,750 pounds per fall), submitted by The Landley Company, Inc., 15 Park Row, New York, N. Y. (9 F. R. 6892, June 21, 1944).

#### APPROVAL WITHDRAWN

#### LIFE RAFTS

Effective immediately, the approvals of all types of life rafts for ocean and coastwise service issued or made effective prior to March 15, 1943, are hereby withdrawn, and hereafter all new installations and replace-

ments of life rafts on ocean and coastwise vessels shall be of an improved type which received approval on or after March 15, 1943: *Provided*, That these withdrawals of approvals shall not affect any approved life rafts now installed and in service so long as they are suitable and in good condition (9 F. R. 6384, June 10, 1944).

#### SEA ANCHORS

Sea anchor, type A-1 (U. S. Coast Guard specification and Dwg. No. MMI-562, dated 1 November, 1943), submitted by Eveready Canvas Corp., 20 Fulton St., New York, N. Y. (Original approval April 18, 1944—9 F. R. 4126) (9 F. R. 6384, June 10, 1944).

Karlson Sea Anchor No. 10 (Dwg. Plate #1150 and specification dated 1 November, 1943), submitted by Maritime Canvas and Rope Co., 8 State St., New York, N. Y. (Original approval November 19, 1943—8 F. R. 15745) (9 F. R. 6384, June 10, 1944).

#### DESIGN APPROVAL BY THE COMMANDANT

#### LIFE PRESERVERS

##### NOTICE OF DESIGN APPROVAL

By virtue of the authority vested in me by R. S. 4405, 4417a, 4426, 4482, 4488, 4491, as amended, 49 Stat. 1544 (46 U. S. C. 375, 391a, 404, 475, 481, 489, 367) and Executive Order 9083, dated February 28, 1942 (7 F. R. 1609), the designs of the models of life preservers listed below have been approved. Manufacturers who desire to build them shall submit requests to Commandant, U. S. Coast Guard, Washington 25, D. C., for copies of drawings and specifications. The type approvals for each manufacturer will be made in accordance with the general rules and regulations for vessel inspection and published in the Federal Register.

Coast Guard adult kapok life preserver, Model 1 (C. G. Dwg. No. F-49-6-1, Sheets 1 and 2, and Specification dated 10 June 1944) (20 to 21 ounces kapok, removable pads inclosed within vinylite covering). (For general use.)

Coast Guard adult kapok life preserver, Model 2 (C. G. Dwg. No. F-49-6-1, Sheets 1 and 2, and Specification dated 10 June 1944) (20 to 21 ounces kapok, removable pads not inclosed within vinylite coverings). (For general use.)

Coast Guard adult kapok life preserver, Model 3, (C. G. Dwg. No. F-49-6-1, Sheets 1 and 2, and Specification dated 10 June 1944) (23 to 24 ounces kapok, removable pads inclosed within vinylite covering). (For use with lifesaving suits.) (9 F. R. 6904, June 21, 1944.)

#### CHANGE OF ADDRESS

#### U. S. ARMY TRANSPORTATION CORPS KAPOK LIFE PRESERVER

##### NOTICE OF CHANGE IN ADDRESS

**NOTE:** Since the publication of F. R. Doc. 44-5775, which appeared on page 4417 of the issue for Tuesday, April 25, 1944, the address given in connection with the U. S. Army Transportation Corps adult kapok life preserver has been changed to read "U. S. Army Transportation Corps, New York Port of Embarkation, Water Division, Marine Safety Inspection Section, 1st Avenue and 58th Street, Brooklyn, N. Y." (9 F. R. 6143, June 6, 1944).

#### APPROVAL NUMBERS FOR STAND- ARD LIFE SAVING DEVICES

#### LIFE PRESERVERS

The following life preservers constructed in accordance with Coast Guard specification have been approved and issued the following approval numbers:

Standard adult cork life preserver, Approval No. A-283, submitted by Alaska Steamship Company, Piers 50 and 51, Seattle, Washington. (June 13, 1944)

Standard child cork life preserver, Approval No. A-283, submitted by Alaska Steamship Company, Piers 50 and 51, Seattle, Washington. (June 13, 1944)

Standard adult kapok life preserver, Approval No. A-284, submitted by Puget Sound Tent and Duck Company, 1905 Third Avenue, Seattle, Washington. (June 22, 1944)

Standard adult cork life preserver, Approval No. A-285, submitted by Puget Sound Tent and Duck Company, 1905 Third Avenue, Seattle, Washington. (June 22, 1944)

Standard adult balsa wood life preserver, Approval No. A-286, submitted by Puget Sound Tent and Duck Company, 1905 Third Avenue, Seattle, Washington. (June 22, 1944)

## ELECTRICAL APPLIANCES

For the use of Coast Guard personnel in their work of inspecting merchant vessels, the following items of electrical equipment have been examined. This list is not intended to be an all-inclusive list of miscellaneous electrical equipment; accordingly, items not included may also be satisfactory for marine use.

Manufacturer and description of equipment	Location apparatus may be used				Date of action
	Passenger and crew quarters and public spaces	Machinery cargo and work spaces	Open decks	Pump rooms of tank vessels	
Appleton Electric Co., Chicago, Ill.: Switch, nonwatertight, single pole, 10 amperes, 125 volts, catalog No. 71120, alt. 1, drawing No. 58894, alt. 1.	x				5/26/44
Switch, nonwatertight, 3-way, 10 amperes, 125 volts, catalog No. 71122, alt. 1, drawing No. 58895, alt. 1.	x				5/26/44
Receptacle, nonwatertight, duplex, 10 amperes, 125 volts, catalog No. 71171, alt. 1, drawing No. 58896, alt. 1.	x				5/26/44
Receptacle, nonwatertight, 10 amperes, 125 volts, catalog No. 71170, alt. 1, drawing No. 58897, alt. 1.	x				5/26/44
Junction unit, watertight, catalog No. 71210, alt. 1, drawing No. 59045, alt. 1.	x	x	x		5/26/44
Condi-Lite Corporation, New York, N. Y.: Wiring devices, drawing No. C44-844-8, alt. 0: Switch, nonwatertight, single pole, 10 amperes, 125 volts, catalog No. 550.	x				5/23/44
Duplex switch, nonwatertight, single pole, 10 amperes, 125 volts, catalog No. 551.	x				5/23/44
Receptacle, nonwatertight, 2-wire, 15 amperes, 125 volts, catalog No. 552.	x				5/23/44
Receptacle, duplex, nonwatertight, 2-wire, 15 amperes, 125 volts, catalog No. 553.	x				5/23/44
Connection box, nonwatertight, catalog No. 554.	x				5/23/44
Doran Manganese Bronze Co., Brooklyn, N. Y.: Fixture for installation in deck over cargo oil pump room, drawing No. 1278-A, dated 6/3/43.	x	x	x	x	5/23/44
Zinsmeyer Co., Los Angeles, Calif.: Running light panel with dimmers, semi-automatic, watertight, drawing No. MT-25, rev. 5/15/44.	x	x	x		5/24/44
Running light panel with dimmers, semi-automatic, drip-proof, drawing No. MT-26, rev. 5/15/44.	x	x			5/24/44

## AFFIDAVITS

It is required by the Marine Engineering Regulations that manufacturers submit affidavits before they manufacture items of equipment in accordance with these regulations for use on vessels subject to inspection by the Coast Guard. These affidavits are kept on file at Coast Guard Headquarters and a list of approved manufacturers is published for the information of all parties concerned. The affidavits received and accepted during the period from May 16 to June 15, 1944, are as follows:

*American Iron & Machine Works Co., Oklahoma City, Okla., flanges.*

*Froemming Bros., Inc., 1905 South First Street, Milwaukee, Wis., fabricated manifolds and fittings.*

*The Peters Co., Portland, Oregon, fabricated steel manifolds, valves and fittings.*

*Pittsburgh Equitable Meter Co., 400 N. Lexington Avenue, Pittsburgh 8, Pa., fittings.*

*Sollberger Engineering Co., Marshall, Texas, cast steel valves and fittings.*

## Items Suitable for Merchant Marine Use

### PRESSURE VACUUM RELIEF VALVE

The Vapor Recovery Systems Co., 2820 North Alameda Street, Compton, Calif., 4 inch flanged x 6 inch Victaulic Fig. 37 Duplex Pressure and Vacuum Relief Valve, Serial No. C18921 (drawing No. C-495, dated February 12, 1944); for use with inflammable and combustible liquids of grade A or lower on tank vessels subject to jurisdiction of the Coast Guard.

### ACCEPTABLE FUSIBLE PLUGS

The Marine Engineering Regulations require that fusible plug manufacturers who desire to have their products approved for marine service shall submit samples for testing from each heat to the Commandant, U. S. Coast Guard. If the sample fusible plugs pass the test satisfactorily, the manufacturer is notified and then the plugs may be used on vessels subject to inspection by the Coast Guard. For the information of all parties concerned, a list of approved heats for manufacturers which have been tested and found acceptable during the period from May 16 to June 15, 1944, are as follows:

*H. B. Sherman Manufacturing Co., Battle Creek, Mich., heats Nos. 433 and 435.*

## Activities of Merchant Marine Hearing Units

COAST GUARD Merchant Marine Hearing Units, during May, handled cases involving 178 licensed officers and 1,709 unlicensed men. In the case of officers, 4 were revoked, 16 were suspended, 26 were suspended on probation, 6 were suspended plus suspended on probation, 4 were voluntarily surrendered, 76 admonitions were given, and 46 cases were dismissed. Of the unlicensed personnel, 10 were revoked, 197 were suspended, 211 were suspended on probation, 5 were suspended plus suspended on probation, 34 were voluntarily surrendered, 727 admonitions were given, and 525 cases were dismissed.

# Merchant Marine Personnel Statistics

## MERCHANT MARINE LICENSES ISSUED DURING MAY 1944

### DECK OFFICERS

REGION	Master										Chief Mate										Second Mate									
	Ocean		Coast-wise		Great Lakes		B. S. & L.		Rivers		Ocean		Coast-wise		Great Lakes		B. S. & L.		Rivers		Ocean		Coast-wise		Great Lakes		B. S. & L.		Rivers	
	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R
Atlantic coast.....	70	98	4	18	4	8	59	1	9	73	25	2	1	1		8					139	18		4						
Gulf coast.....	15	15		6		3	4	5	5	18	3		1			1		1	5	2	16	3								
Great Lakes and rivers.....					2	22			20																					
Pacific coast.....	41	36	2	2		3	10		2	64	7					4	5				77	6		1			1			
Total.....	126	149	6	26	2	26	14	73	11	36	155	35	2	2	1		4	11	6	4	232	29		5			1			

REGION	Third Mate										Pilots						Master Mate				Total		
	Ocean		Coast-wise		Great Lakes		B. S. & L.		Rivers		Great Lakes		B. S. & L.		Rivers		Uninspected vessels high seas				Original	Renewal	Grand total
	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R			
Atlantic coast.....	321	17		3							55	23	8	132	3	9			2		687	428	1,115
Gulf coast.....	31	1						5		7			6	12	18	3					113	68	181
Great Lakes and rivers.....											5	24	5	17	59	21					81	108	189
Pacific coast.....	115	6										1	29	43	4	4					340	123	463
Total.....	467	24		3				5		7	60	48	48	204	84	37			2		1,221	727	1,948

### ENGINEER OFFICERS

REGION	Chief engineer, steam				First assistant engineer, steam				Second assistant engineer, steam				Third assistant engineer, steam			
	Ocean		Inland		Ocean		Inland		Ocean		Inland		Ocean		Inland	
	O	R	O	R	O	R	O	R	O	R	O	R	O	R	O	R
Atlantic coast.....	52	103	19	33	86	31	1	10	162	36	1	1	407	24		1
Gulf coast.....	13	14	1	7	32	8		4	28	6			28	5		
Great Lakes and rivers.....	3	12	2	40		2	14	30	1		7	6		1	2	
Pacific coast.....	18	39		9	46	7	1	6	86	5		3	92	10		2
Total.....	86	168	22	95	164	48	16	50	277	52	8	10	527	40	2	3

REGION	Motor vessels								Uninspected vessels				Totals		
	Chief engineer		First assistant engineer		Second assistant engineer		Third assistant engineer		Chief engineer		Assistant engineer		Original	Renewal	Grand total
	O	R	O	R	O	R	O	R	O	R	O	R			
Atlantic coast.....	22	49	16	16	9	4	280						1,055	308	1,363
Gulf coast.....	6	8	8	2	3		7						125	54	179
Great Lakes and rivers.....	2	6	5	2	1		1						38	110	148
Pacific coast.....	12	26	8	8	10	1	94						366	116	482
Total.....	42	89	37	28	23	5	382						1,586	588	2,174

# ORIGINAL SEAMEN'S DOCUMENTS ISSUED, MONTH OF MAY 1944

Region	Continuous discharge book	Certificate of identity	A. B., green 3 years <sup>1</sup>	A. B., green 9 months emergency <sup>2</sup>	A. B., blue 18 months <sup>3</sup>	A. B., blue 6 months emergency <sup>4</sup>	A. B., blue 6 months emergency <sup>5</sup>	Life-boat 12-24 months <sup>6</sup>	Life-boat 6-12 months emergency <sup>7</sup>	Q. M. E. D. 6 months	Q. M. E. D. emergency	Radio operators	Certificate of service	Tanker man	Staff officer	Total
Atlantic coast.....	97	4,437	75	617	86	11	1	3,546	14	250	892	167	3,971	5	292	14,461
Gulf coast.....	94	535	9	109	10	0	0	453	7	38	198	9	377	47	27	1,913
Pacific coast.....	32	2,053	28	278	39	5	1	1,154	15	124	412	53	1,515	9	69	5,787
Great Lakes and Rivers...	1,727	199	17	46	11	36	0	37	33	40	126	23	1,835	15	5	4,150
Total.....	1,950	7,224	129	1,050	146	52	2	5,190	69	452	1,628	252	7,696	76	393	26,311

<sup>1</sup> Unlimited.

<sup>2</sup> Unlimited.

<sup>3</sup> Unlimited.

<sup>4</sup> Great lakes, lakes, bays, and sounds.

<sup>5</sup> Tugs and towboats and freight vessels under 500 tons (miscellaneous).

<sup>6</sup> 12 months deck or 24 months other departments.

<sup>7</sup> 6 months deck or 12 months other departments.

NOTE.—There were 965 Panamanian Employment Cards issued..

## WAIVERS OF MANNING REQUIREMENTS FROM 1 MAY TO 31 MAY 1944

Authority for these waivers contained in Navigation and Vessel Inspection Circular No. 31, dated 13 March 1943

Region	Number of vessels	Deck officers substituted for higher ratings	Engineer officers substituted for higher ratings	Able seamen substituted for deck officers	Ordinary seamen substituted for able seamen	Qualified members of engine department substituted for engineer officers	Wipers or coal passers substituted for qualified members of engine dept.	Wipers, coal passers, or cadets substituted for engineer officers	Ordinary seamen, or cadets substituted for deck officers	Tanker-men substituted for engineer officers	Total
Atlantic coast.....	545	323	351	54	781	96	43	33	51	1	1,733
Gulf coast.....	66	39	32	5	104	13	12	1	1		207
Pacific coast.....	282	143	116	30	538	59	43	5	12	1	946
Great Lakes.....	541	2	7		582			343			934
Total.....	1,434	507	506	89	2,005	168	98	382	64	2	3,820

## CREW SHORTAGE REPORTS FROM 1 MAY TO 31 MAY 1944

These reports submitted in accordance with Navigation and Vessel Inspection Circular No. 34, dated 1 May 1943

Region	Number of vessels	Ratings in which shortages occurred										Total
		Chief mate	Second mate	Junior third mate	Able seaman	Ordinary seaman	First engineer	Second engineer	Junior third assistant	Qualified member engine department	Wiper or coal-passer	
Atlantic coast.....	9		1	2	2	1	1	1	1	5		14
Gulf coast.....	1				1	1						2
Pacific coast.....	21	3		1	32	16				14	3	69
Great Lakes.....	175	1	1	2	62	10	3	6	12	101	28	226
Total.....	206	4	2	5	97	28	4	7	13	120	31	311